DECEMBER '56

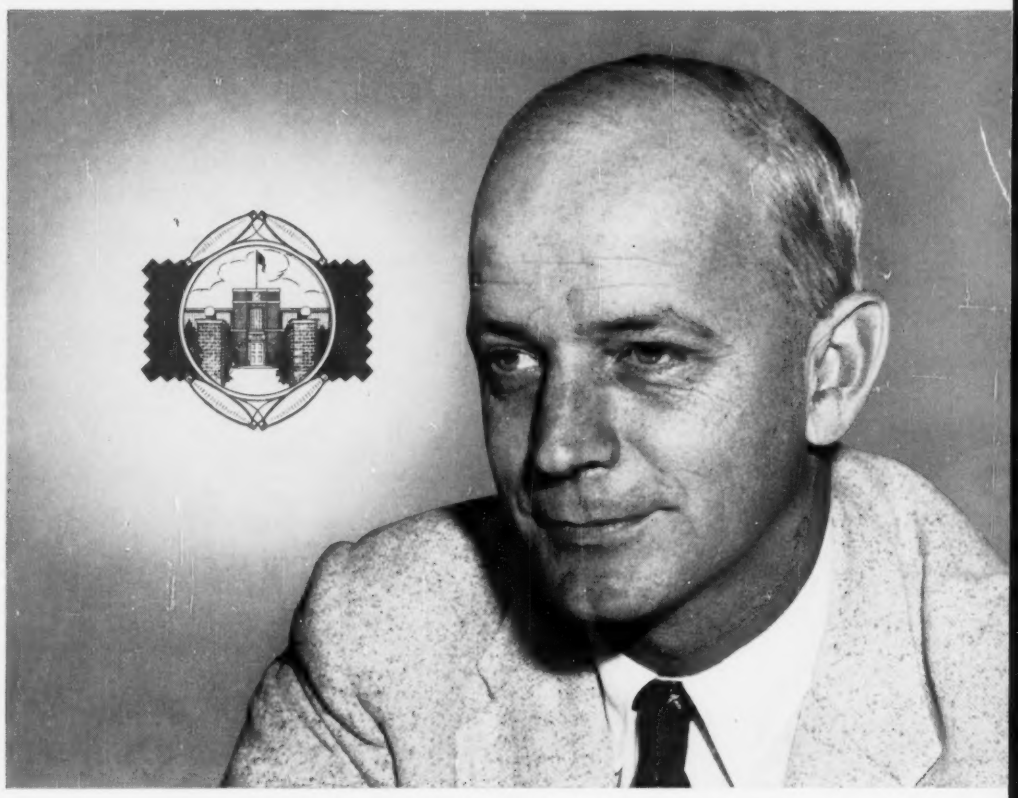
MODERN TEXTILES MAGAZINE

Specializing in Rayon and Synthetic Fibers since 1925

FIBERS

FABRICS

FINISHES



WALTER REGNERY -- his Joanna Mills sets pace in human relations and efficiency -- *Story page 31*

THIS MONTH'S SPECIAL FEATURES

How tufting is done

Spinning modernization pays

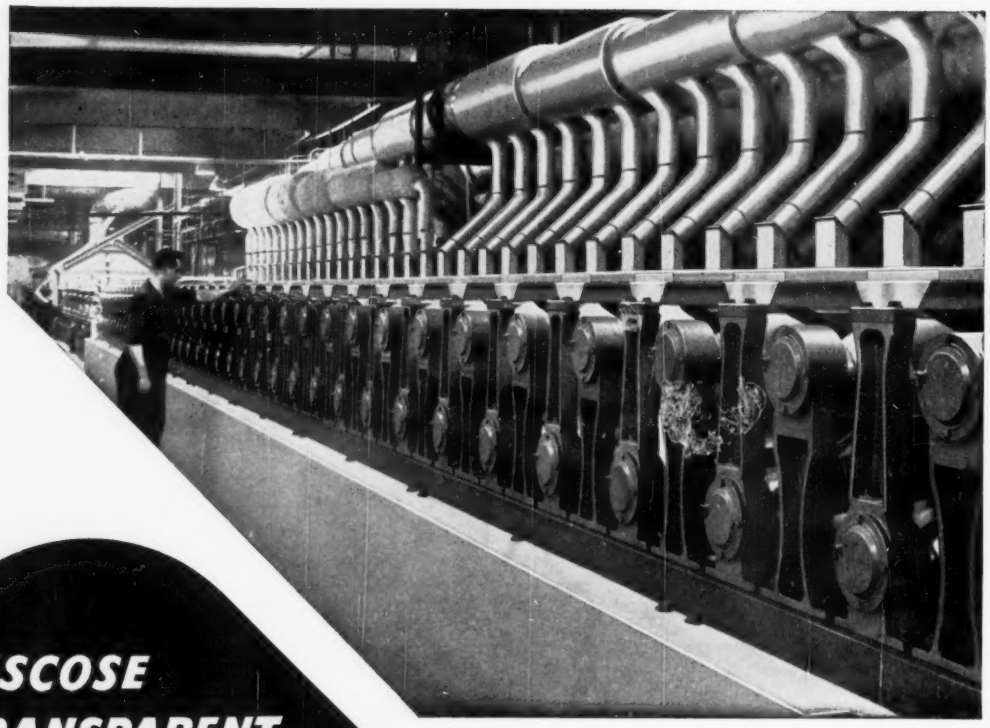
Quality control can help you

Applying mothproofing to carpets

New high speed tricot machine

AND 16 MORE EXCLUSIVE REPORTS AND TIMELY ARTICLES

Photograph by courtesy of Transparent Paper Limited, Bury



VISCOSE TRANSPARENT film . . .

at 5 feet a second

INCREASED PRODUCTION

Designed and manufactured in close collaboration with the industry, Dobson & Barlow's new Viscose Transparent Film Machine, shown here in operation, produces 59" wide film in 1,000 lb. finished reels at 300 feet per minute. A number of these machines are being supplied to the Bridge Hall Mill of Transparent Paper Limited, Bury, for their re-equipment programme. These high production figures are made possible by 8-pass treatment tanks, greatly accelerated cylinder drying and improved reel tensioning.

IMPROVED QUALITY WITHOUT WASTE

Specially prepared roller surfaces, a new drying system and the careful attention given to the finish of all contact parts ensure exceptionally smooth film of regular thickness, and virtually no waste.

NEW PROCESSING ECONOMIES

An oil-immersed gear box drive to each treatment tank, better glanding of rollers, protection against corrosion, and general machine accessibility make definite economies in maintenance costs.

DOBSON & BARLOW RAYON MACHINERY SALES LTD.

BRADLEY FOLD, BOLTON, ENGLAND

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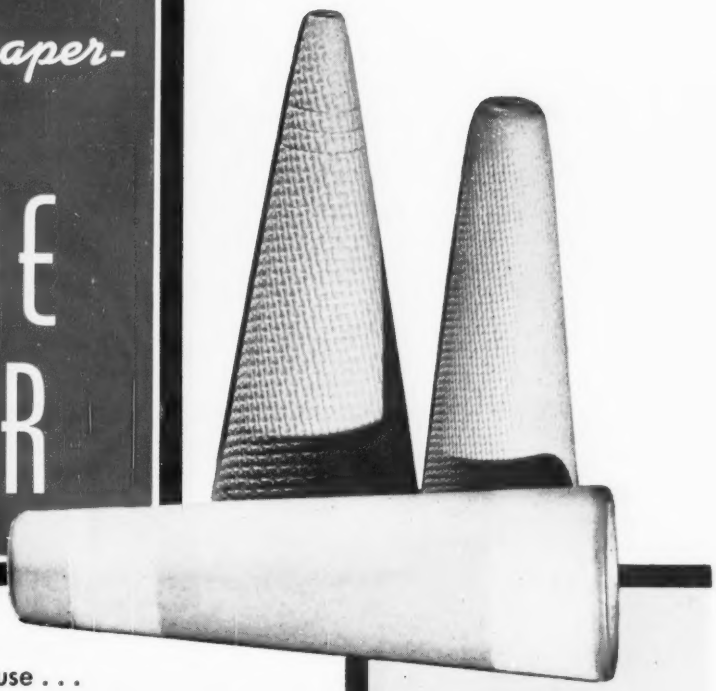
If it's made of paper-

SONOCO

HAS THE ANSWER



because . . .

SONOCO is constantly striving to improve present products and conducts a continuing program of research and development to meet the needs of an ever-changing textile industry.

SONOCO paper products have become "standard of the world" wherever textiles are made . . . a "plus value" advantage which has resulted in industry-wide benefits since 1899.

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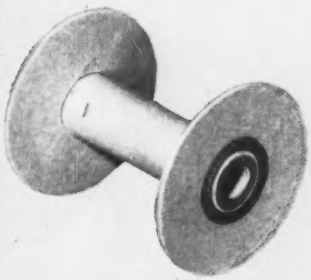
Spiral, convolute, parallel or drawn construction from ⅛" to 48" I.D. in any practical length and wall thickness — for every textile need! Available in colors, various surfaces, treated, impregnated, perforated, scored, notched, printed, with crimped or burnished ends.

CONES

Available with various surfaces, inside and outside printing, notches, scores, perforations and in many nose and tip designs. Lacquer tipping, dyed base and tip, and striped base can be furnished for yarn identification.



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A complete variety of standard sizes, or made to your order. Available with plain, printed and treated heads. Also standard and special tapered base single head thread spools in fibre and plastic.

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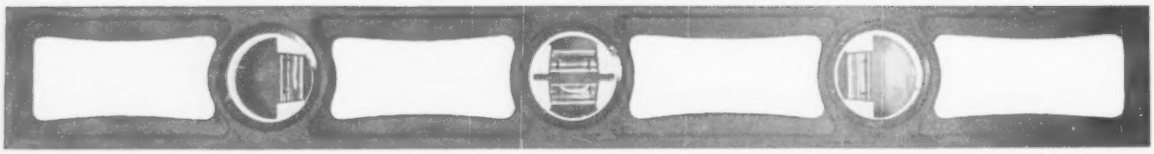
an efficient wool dyeing auxiliary and



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Anthomine achieves a full shade in dyeing tippy and blended wool.

Thousands of pounds of Anthomine have enabled U.S. and Canadian mills, in the past ten years, to meet rigid government specifications in the dyeing of wool for military fabrics.

It possesses good softening qualities, leaving the wool with a very pleasing, rich hand, of special value in strong acid dyeing which otherwise would harshen the fibers.

Anthomine also provides excellent exhaustion of the dyebath and speeds up dyeing operation.

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NEWARK, NEW JERSEY

MODERN TEXTILES MAGAZINE *

December, 1956 Vol. 37, No. 12

Modern Textiles Magazine
Established 1925

* * *

Published Monthly by
Rayon Publishing Corporation
303 Fifth Ave., New York 16, N. Y.
MUrray Hill 4-0455

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Subscription Rates: North and South America and U. S. Possessions, one year $5.00; all other countries, one year, $8.00. Postage prepaid by the publisher. Single copies (current issue), 60 cents.

BPA
Member of
Business Publications Audit of Circulation, Inc.

Entered as second-class matter at the Post Office, Manchester, N. H. Editorial and Circulation offices at 303 Fifth Avenue, New York 16, N. Y. Publication offices at 215 Canal Street, Manchester, N. H.
(Originally entered as second-class matter at the Post Office, New York, N. Y. August 20, 1925).

* * *

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The Principal Trade Groups

Rayon and Acetate Fibers Producers Group ..... Empire State Bldg., New York
National Federation of Textiles, Inc. ..... 389 Fifth Ave., New York
American Association of Textile Chemists and Colorists ..... Lowell Techn. Inst., Lowell, Mass.
American Association for Textile Technology, Inc. ..... 100 W. 55th St., New York
Silk and Rayon Printers and Dyers Ass'n of America, Inc. ..... 1450 Broadway, New York
Synthetic Organic Chemical Manufacturers Association ..... 41 E. 42nd St., New York
Textile Distributors Institute, Inc. ..... 469 Seventh Ave., New York
American Rayon Institute ..... 350 Fifth Avenue, New York

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Fine Denier Caprolan Available

Caprolan nylon filament yarns are now available for sampling purposes in a range of finer deniers according to George H. Hotte, director of fiber sales and service, National Aniline Division, Allied Chemical & Dye Corp. For the past 11 months the company has been in commercial production on Caprolan heavy yarns, ranging from 2000 to 50,000 denier.

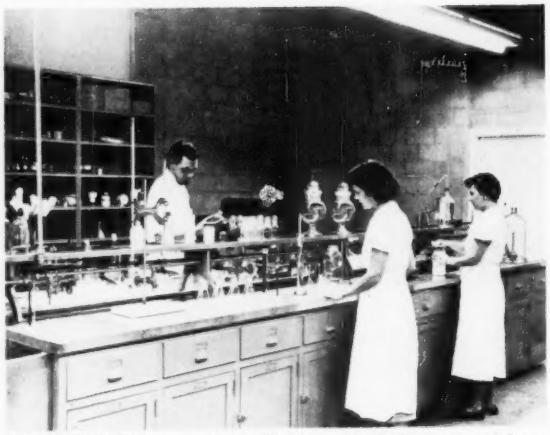
Run-in procedures have been completed and production has begun on bright 200 denier, 32 filament, ½ turn, Z twist regular tenacity Caprolan and 560 denier, 32 filament, 1 turn, Z twist high tenacity Caprolan yarns. Samples of bright 210 denier, 32 filament, 1 turn, Z twist, high tenacity will also be available shortly. The 560/32 is a new number engineered for use in the new bulking processes as well as in the upholstery and cordage and braiding fields.

Caprolan high tenacity yarns are reported to offer high strength, whiteness and economical dyeability in one yarn. It is also claimed that Caprolan has unusual affinity for virtually every class of dyestuffs including directs, acids, disperse, pre-metalized acid and the newer pre-metalized neutral dyes. Caprolan heavy yarns are now commercially available in 13 deniers and filament counts.

'Wash-N-Wear' Symposium

Plans for an industry-wide trade symposium on "wash and wear" fabrics next Spring have been announced by J. Morton Curran, Jr., chairman of the New York Board of Trade's Textile Section. Cameron A. Baker, United States Testing Co., and Jackson Spears, Burlington Industries, have been appointed co-chairmen of the special arrangements committee. The symposium will feature a panel of experts to discuss "minimum wear fabrics" problems from the weaving and finishing stages up to the consumer level.

New Laboratory

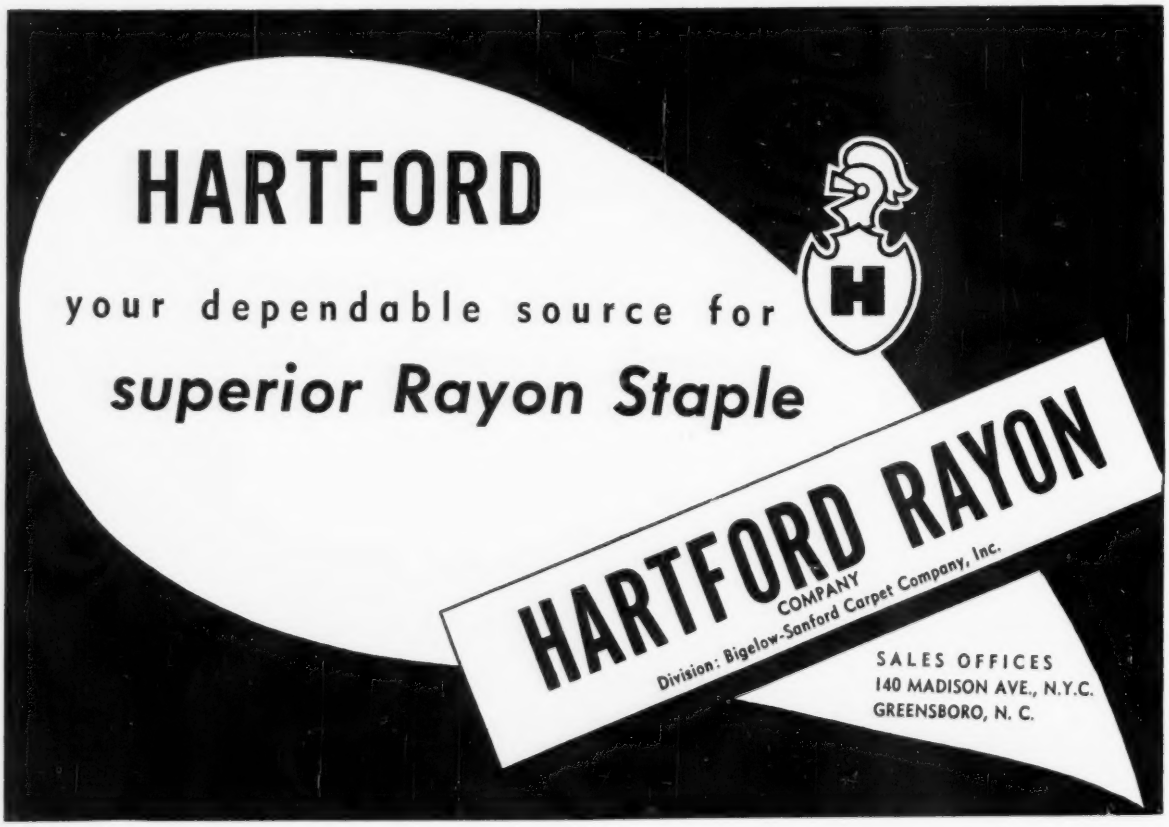


Stein Hall & Co.'s new unit in Charlotte, N. C. houses two laboratories—a Southern textile laboratory and a resin laboratory. The textile laboratory is responsible for development of new textile products and the resin laboratory engages in research on Stein Hall resins.

Wilson Heads Virginia-Carolina

William H. Wilson was elected president of Virginia-Carolina Chemical Corp. at a recent directors' meeting in Richmond, Va. The new president, a 40-year-old executive from New Orleans, is a native of Saginaw, Mich. and had been executive vice president of Standard Fruit and Steamship Co.

William C. Franklin, who had been acting president since a change in V-C's management control a few months ago, was made permanent chairman of the board. He succeeds John S. Battle.



Do they both hold 4 aces?

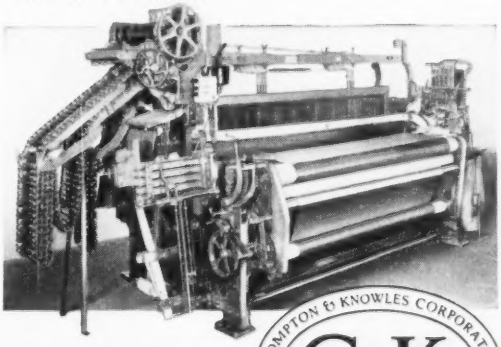
(...does Casey tell Trimble?)

No trick to it all. Of course they can *both* win . . . just as everybody wins . . . if they have a woolen or worsted weaveroom loaded with C & K's W3 and W3A Looms equipped with the unique and exclusive Select-A-Pic feature.

For no other looms can do what these looms can do . . . and that is to produce *automatically* pick-and-pick fabrics like plaids and splashes which . . . on any other types of looms . . . can only be woven *non-automatically.*

PROOF: Over 600 Select-A-Pic Looms are now in daily operation, and have been for some time. In that time, 11 customers reordered once . . . three customers placed 3 repeat orders each . . . two customers reordered 4 times . . . one customer reordered 5 times . . . one customer reordered 9 times . . . and so on down the long list.

REPEAT: There's no proof of performance like repeat orders. And if you want to see what brings in these repeat orders, *come see C & K's Select-A-Pic Looms in action.*



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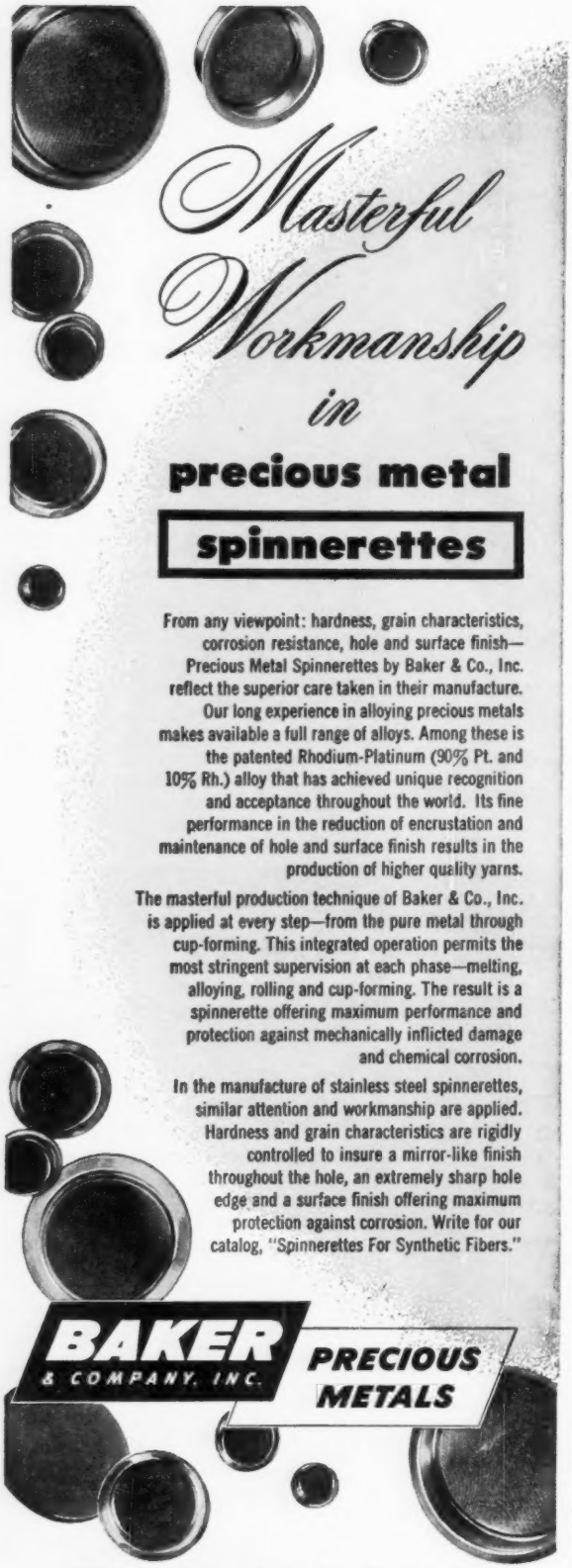
Masterful
Workmanship
in
precious metal
spinnerettes
From any viewpoint: hardness, grain characteristics, corrosion resistance, hole and surface finish—Precious Metal Spinnerettes by Baker & Co., Inc. reflect the superior care taken in their manufacture. Our long experience in alloying precious metals makes available a full range of alloys. Among these is the patented Rhodium-Platinum (90% Pt. and 10% Rh.) alloy that has achieved unique recognition and acceptance throughout the world. Its fine performance in the reduction of encrustation and maintenance of hole and surface finish results in the production of higher quality yarns.
The masterful production technique of Baker & Co., Inc. is applied at every step—from the pure metal through cup-forming. This integrated operation permits the most stringent supervision at each phase—melting, alloying, rolling and cup-forming. The result is a spinnerette offering maximum performance and protection against mechanically inflicted damage and chemical corrosion.
In the manufacture of stainless steel spinnerettes, similar attention and workmanship are applied. Hardness and grain characteristics are rigidly controlled to insure a mirror-like finish throughout the hole, an extremely sharp hole edge and a surface finish offering maximum protection against corrosion. Write for our catalog, "Spinnerettes For Synthetic Fibers."
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Rayon Tire Yarn Prices Reduced

Last month a number of producers reduced rayon tire cord prices while one producer increased them. The price reductions started when Industrial Rayon Corp., announced a reduction of three cents a pound effective Nov. 1. The reduction brought the price of Industrial's 1650 denier Tyron 100 yarn to 55 cents from a previous price of 58 cents. Industrial's higher strength Tyron 200 was cut from 61 cents to 58 cents.

American Viscose Corp. reduced prices three cents a pound as follows: Super Rayflex rayon tire yarn 58 cents; Avisco tire yarn 55 cents. A similar three cent reduction was made by American Enka Corp., bringing prices of Tempra yarns to 59 cents for 1100 denier; 55 cents for 1650 and 2200 denier. Prices of Suprenka yarn were reduced to 63 cents for 1100 denier; 58 cents for 1650 denier and 57 cents for 2200 denier.

The Du Pont Co. also cut its prices of rayon tire yarn by three cents a pound. The new prices of the company's types 168, 258 and 272 Super Cordura yarns are 63 cents for 1100 denier; 58 cents for 1650 denier and 57 cents for 2200 denier.

As these reductions were being announced, Beaunit Mills increased its tire yarn prices by four cents a pound, bringing them to the level of the newly reduced prices of other producers. Beaunit's tire yarn prices were reduced last July to a point considerably below prevailing prices. The new prices of Beaunit, as announced by its subsidiary, North American Rayon Corp., are 55 cents a pound for its high tenacity 1650 and 1850 denier yarns and 58 cents for its 1650 super high tenacity yarn.

Pile Fabric Finishing Machines

A new machine for finishing fur-like high pile fabrics has been developed by Turbo Machine Co. The major function of the new machine is to raise the pile of the fabric and impart fur-like characteristics. The machine consists of an electrically heated cylinder, controlled by instruments so that a constant preset heat is maintained. The cylinder has special grooves that separate and straighten the fibers and give the fabric a fur-like hand. A pneumatically controlled endless conveyor brings the cloth in contact with the cylinder at the speed and pressure desired.

The machine, while used principally on high pile blends of Orlon and Dynel at present, may also be used with other long hair or pile fabrics such as wool, nylon, and rayon, by adjusting the temperature of the cylinder and the tension on the conveyor.

Turbo has also developed a shearing machine and a wet applicator or swabbing machine for use in high pile finishing. The shearing machine is used for rough-shearing before the pile is raised and straightened, and also for final shearing. An exclusive feature is a fabric conveyor which can be adjusted for the proper cut. The operator uses a micrometer adjustment located within easy reach on the front of the machine. Depth of cut can be varied from ten-thousandths of an inch to one-half an inch. Blades can be resharpened by reversing the main cylinder and running it against the main bed knife.

Cold Wash for Synthetics

What is claimed to be the first and only automatic home washing machine on the market with a "cold water wash" cycle for laundering synthetic fabrics was demonstrated recently by the Maytag Co. in New York City. Du Pont's suggestion for such a cold wash to reduce the need for ironing garments of synthetic fabric construction is now a reality, according to Maytag.

The use of cold water for both wash and rinse in the Maytag "All-Fabric" washer, combined with the action of a liquid detergent, is claimed to be the most effective way to care for modern fabrics.

THE WORLD'S MOST EXPERIENCED BUILDERS OF MAN-MADE FIBER PLANTS OFFER

MACHINERY AND COMPLETE PLANTS FOR THE MANUFACTURE OF VISCOSE, ACETATE AND SYNTHETIC YARNS, FIBERS AND FILMS

ENGINEERING, PROCESS AND PRODUCTION KNOW-HOW FOR

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MOISTURE PROOF TRANSPARENT FILMS

Our expert staff and engineering offices located in various parts of the world are at your service to discuss matters of interest with you, whether a complete plant, an addition to your factory, or a single machine. Please write us.

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Do you realize that it only takes *one drop* of DUOFOL per gallon of solution (2-7 oz./100 gal.) to give your dyeing and "Sanforizing" solutions all the wetting, rewetting and softening properties required?

Although this droplet looks tiny, it has exceptional wetting power — even in water as hard as 500 ppm! And when it comes to speed . . . we can state categorically that DUOFOL is the fastest acting wetting-out agent on the market.

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Nylon for Carpeting....!

WHY?

HERE'S WHY:

1. **Permanent Textures.** More *permanent* than wool, cotton or rayon.
2. **Cleanable.** Nylon is an easy-to-care-for fiber. The round, smooth nylon fibers prevent dirt from clinging. May be spot-cleaned and shampooed. Dries quickly.
3. **Resists Abrasion and Scuffing.** Will outwear comparable carpeting made from *any other* fiber
4. **Resists Crushing and Matting.** More crush resistance and less matting than comparable wool, rayon or cotton floor coverings in service.
5. **More Resilient.** More resilient than comparable wool, rayon or cotton floor coverings after continued usage.
6. **Economical.** The strongest and toughest of all carpet fibers, nylon will outwear comparable wool and rayon fabrics, thus be actually less expensive in the long run.
7. **Mothproof, Insect-Resistant.** Never a worry about moths! Carpet beetles cannot attack nylon carpeting.
8. **Decorator Colors.** Nylon can be dyed in lasting colors and an attractive range of shades.

Any reliable manufacturer can deliver these benefits in carpeting made from 100% IRC nylon. In addition, manufacturers can, and are delivering nylon blends in superior carpeting which features many of the pluses listed above.

Nylon offers the carpeting industry positive performance characteristics that add up to true value for the consumer.

THE NEW Nylon Staple I·R·C

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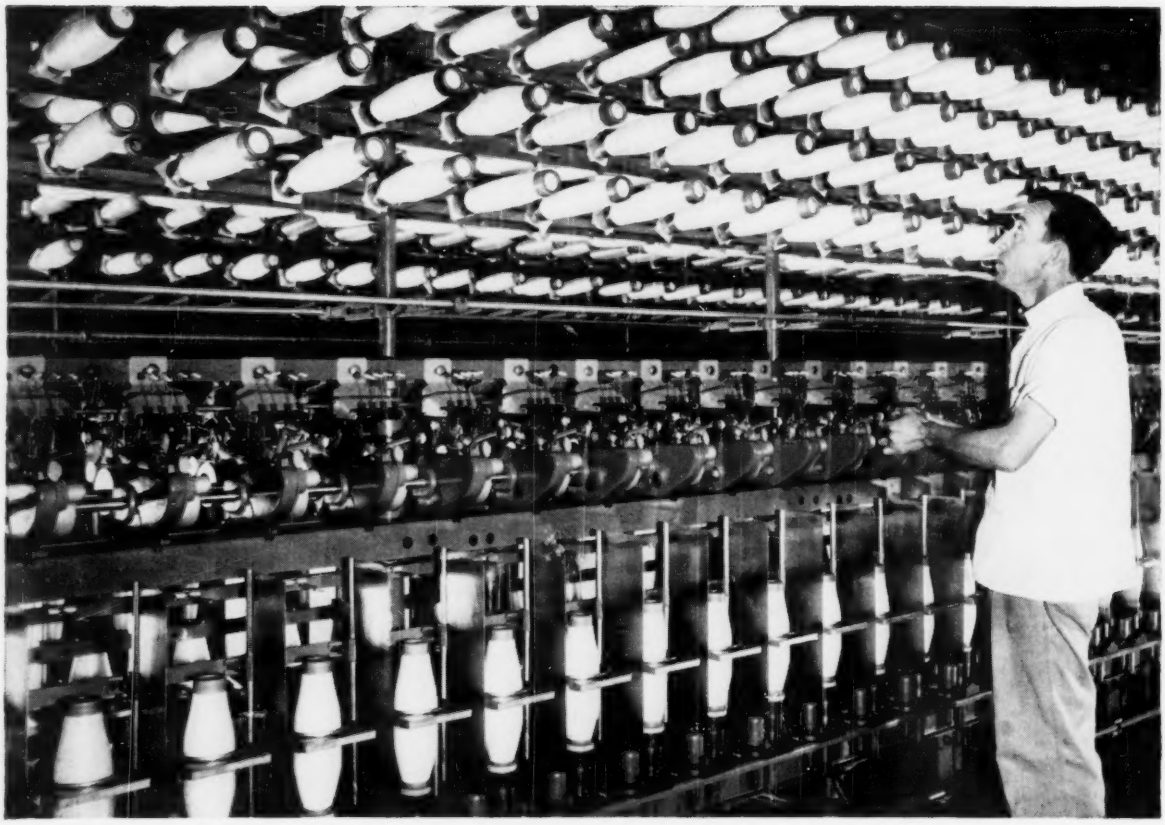

Leesona Model 10 Ring Twisters processing glass yarn at the Seguin, Texas, plant of the Coast Manufacturing and Supply Company. The firm produces Trevarno Glass Fabrics.

Producers of TREVARNO GLASS FABRICS chose Leesona Model 10 Ring Twisters

Years of research and planning went into the decision of Coast Manufacturing and Supply Company to enter the textile industry as processors and weavers of glass cloth. The 85-year-old Livermore, California, firm, with a long history in the manufacturing and distribution of safety fuse for the mining and construction industries, made the carefully-planned move into textiles in 1947.

Ralph E. Merritt, president of the firm, reports:

"After evaluating other types of twisting equipment, Coast Manufacturing and Supply Company decided upon the Leesona Model 10 Ring Twister."

Model 10's are used exclusively in Coast Manufacturing's 800-spindle twister installation in Seguin, Texas, producing a double-tapered package which can be used directly for filling and warping operations without rewinding.

Versatile Leesona Model 10's can also produce a tapered top or straight wind package. They are ideal for processing not only glass yarn, but rayon, spun rayon, nylon, silk, wool, worsted, cotton and combination yarns, and the new bulk and stretch yarns as well.

Make Your Own Evaluation

See how flexible Leesona Model 10 Ring Twisters can improve your own twisting operations. See your Universal representative or write direct.

23.6.11

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Winding and Twisting Machinery for Natural and Synthetic Yarns

Bemberg grabs off the brass rings!

In this merry-go-round we call the textile industry, grabbing off one "brass ring" in a season is quite an accomplishment.

But Bemberg has done the impossible . . . with an array of big successes that are setting fabulous sales records for mills, converters, manufacturers, and retailers.

Bemberg rayon sheers soared to new highs in 1956. As usual they outsold all other rayon sheers combined . . . but with an extra spurt of volume that shattered the figures of the past several years.

Cupioni®...our wonderful yarn of fashion... in combination with cotton and other fibers, has cut a wide swath of volume in every field where soft goods are used! Cupioni rayon is the yarn sensation of the decade.

There are many other "brass rings" tucked away in the Bemberg rayon yarn line-up. Investigate Cupracolor†, with color bond, Nublite†, Flaikona† (America's only continuous filament plied flake), Strata†, Dream Slub, and the many other unusual Bemberg rayon yarn achievements.

When you grab a winner, the pay-off is heavy!

†Reg. app. for

Bemberg®

ARISTOCRAT® OF RAYON YARN

The above rayon yarns are products of: AMERICAN BEMBERG • Main Office: 261 Fifth Avenue, New York 16, N. Y. • Plant: Elizabethton, Tennessee.

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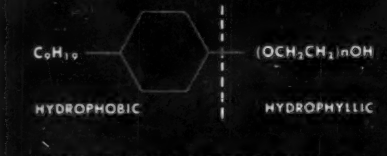
IN YOUR PROCESS

OR PRODUCT



The 8 products that comprise the Igepal CO series of non-ionic surfactants, while chemically alike, are different in ethylene oxide content, solubility and performance characteristics. They are specifically designed and performance tested for use in technical processes and consumer products requiring a stable non-ionic surfactant.

The correct hydrophobic-hydrophyllic balance of any surfactant system is essential to optimum performance. The eight products in the Igepal CO series cover the practical range of hydrophobic-hydrophyllic ratios for nonylphenol to ethylene oxide.

Furthermore, being non-ionic, the Igepals are not limited in their use because of undesired reactions with electrolytes and are stable to hydrolysis by acids and alkalis even at elevated temperatures.

To assist you in planning significant experiments in your product or process, the exact composition of the Igepal CO products are described below. Matched sets of samples are available upon request.

PRODUCT	n*	% ETHYLENE OXIDE	CLOUD POINT, 1% SOLUTION
Igepal CO-210	1½	23	Insoluble in water
Igepal CO-430	4	44	Insoluble in water
Igepal CO-530	6	54	Cloudy at 32° F.
Igepal CO-630	9-10	65	126-133° F.
Igepal CO-710	10-11	68	158-165° F.
Igepal CO-730	15	75	203-212° F.
Igepal CO-850	20	80	Clear at 212° F.
Igepal CO-880	30	86	Clear at 212° F.

*Moles of ethylene oxide per mole of nonylphenol

IGEPAL CO

SURFACTANTS ARE USED IN PRODUCTS OR PROCESSES FOR:

AGRICULTURE

BUILDING

CHEMICAL MANUFACTURING

DETERGENT COMPOUNDING

COSMETICS

DAIRY

LEATHER

METALS

PAPER

PLASTICS

PETROLEUM

TEXTILE

RUBBER

To indicate the wide range of performance characteristics available with Igepal CO surfactants, some typical uses are shown for each product:

IGEPAL CO-210

In high concentrations, serves as defoaming agent in low foaming detergents.
In low concentrations, acts as foam stabilizer for high foaming detergents.
Co-emulsifier in non-ionic surfactant blends.
Defoaming agent in cold water cleaners.
Oil soluble detergent and dispersing agent for use in petroleum oils.

IGEPAL CO-430

Oil soluble emulsifying agent.
Intermediate in the synthesis of high foaming, water soluble sulfate esters.
Oil soluble detergent and dispersing agent for use in petroleum oils.

IGEPAL CO-530

De-inking of paper.
Emulsifier for silicones and agricultural chemicals.
Oil soluble surfactant and emulsifying agent.
Detergent and dispersing agent for use in petroleum oils.

IGEPAL CO-630

Surfactant for use in all phases of textile processing.
Fast rinsing surfactant for cleaning paper machine felts.
Rewetting agent for paper towels and tissues.
Wetting agent in hide soaking and penetrant in fat liquors.
Surfactant for household and industrial cleaning formulations.
Wetting agent for use with mineral acids and corrosion inhibitors.

IGEPAL CO-710

Can be used interchangeably with Igepal CO-630 in most applications, and is particularly effective when higher temperatures are employed.

Highly efficient textile detergent in neutral, acid and alkaline media.
Surfactant in heavy duty liquid detergent formulations and in controlled suds laundry and household formulations.

IGEPAL CO-730

Surfactant for high temperature general detergency, and dispersing.
Emulsifying agent for fats, oils and waxes.
Penetrating and wetting agent in caustic solutions.
Surfactant for use with high concentrations of electrolytes.
Wetting agent for use with mineral acids and corrosion inhibitors.

IGEPAL CO-850

Surfactant for high temperature general detergency and dispersing.
Wetting agent in high concentrations of electrolytes.
Emulsifying agent for fats, oils and waxes.
Stabilizer for synthetic latices.

IGEPAL CO-880

Detergent for high temperature scouring of textiles in pressure equipment.
Stabilizer for synthetic latices.
Surfactant for high temperature general detergency and dispersing.
Emulsifying agent for fats, oils and waxes.
Wetting agent in high concentrations of electrolytes.

MANY APPLICATIONS REQUIRE A MIXTURE OF BOTH AN OIL-SOLUBLE AND WATER-SOLUBLE NON-IONIC SURFACTANT. IN SUCH CASES WE SUGGEST THE USE OF AN IGEPAL HAVING A LOW ETHYLENE OXIDE CONTENT IN COMBINATION WITH ONE HAVING A HIGH ETHYLENE OXIDE CONTENT. THIS WILL GIVE IMPROVED EMULSION STABILITY OVER A WIDER TEMPERATURE RANGE.

For assistance on complex surfactant problems, our technical staff is always available for consultation.
Technical literature on the Igepal CO surfactants will be supplied upon request. Prompt shipments can be made from warehouse stocks maintained at branch offices.

From Research to Reality

ANTARA

ANTARA CHEMICALS
A SALES DIVISION OF
GENERAL ANILINE & FILM CORPORATION
435 HUDSON STREET • NEW YORK 14, NEW YORK

SALES OFFICES: New York • Boston • Providence • Philadelphia • Charlotte • Chattanooga • Chicago
Portland, Ore. • San Francisco • Los Angeles. IN CANADA: Chemical Developments of Canada, Ltd., Montreal

Igepal CO surfactants manufactured by General Aniline & Film Corp. are sold outside the United States under the trademark "Antarox CO".

How to turn your

sizing problems

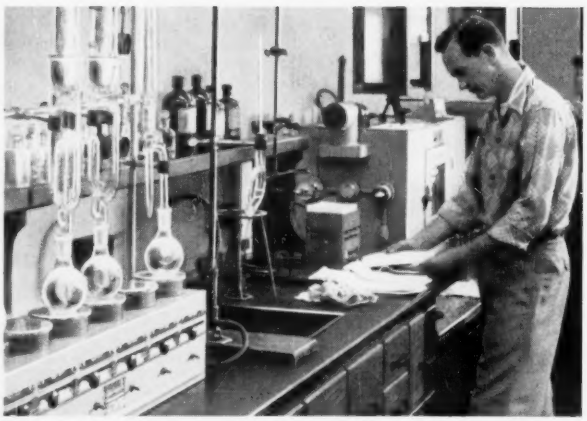
into

sizable profits

Are you up against undue breakage of yarn on slasher or looms? Or having tough going in sizing and de-sizing spun rayon, blends or synthetics? Are your re-starching, printing and back-filling operations as economical and effective as they should be?

If you are faced with these or other sizing problems our Technical Staff can give you a powerful assist toward a profitable solution. For example:

In our modern textile laboratory at Greenville, S. C., Corn Products technicians are constantly engaged in seeking solutions to this type of problem. Important projects now under way on behalf of textile mills include check tests on size content of yarns, performance tests of various formulas, perfection of size formulas to meet the specific needs of certain mills.



Check-testing yarns at Corn Products field laboratory, Greenville, S. C. These and many other projects are undertaken on behalf of textile mills.

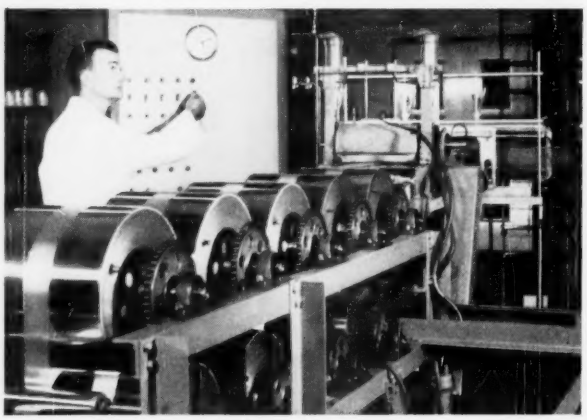
New horizons for textile research

In addition, the Corn Products Multiple Fellowship program sponsors a unique Pilot Plant Slasher Assembly installed at the Mellon Institute, Pittsburgh. Designed and constructed to facilitate study of sizing of all types of natural and synthetic yarns, this flexible assembly permits types of research never before possible—leading to new and better products for the entire textile industry.

Through constant research, continuing quality control and the development of new products and techniques, Corn Products is helping the industry produce higher quality fabrics, in greater volume, at lower unit cost.

Ask the man from Corn Products:

With complete laboratory and technical facilities at his disposal, he can point the way to a solution of your problem. Write or phone for information, no obligation.



Partial view of pilot plant slasher assembly at Mellon Institute. Components include creel with raw yarn, pretentioning mechanism and electrical stop motions; control panel; condensing and leasing apparatus; main slasher unit and size box quetsch assembly.

1906 · **50th ANNIVERSARY** · 1956

CORN PRODUCTS REFINING COMPANY

17 Battery Place, New York 4, N. Y.

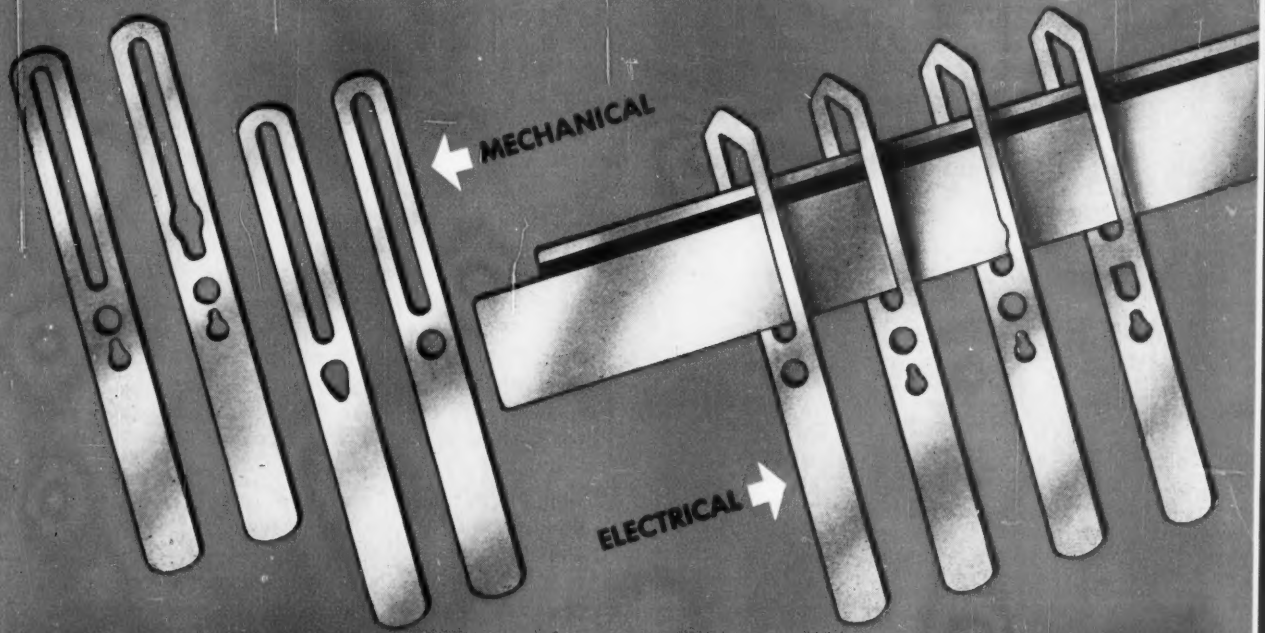
Corn Products make these famous starches for the textile industry—

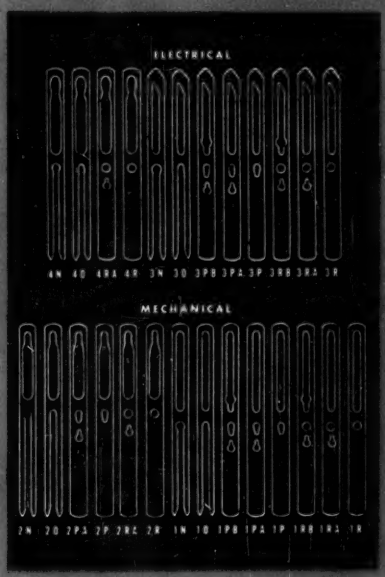
Eagle® • Foxhead® • Globe® • Hercules • Ten-O-Film® • Globe® Dextrines & Gums

Stehedco

SUPERIOR QUALITY
PROMPT DELIVERY

DROP WIRES • ELECTRODE RODS





IMPROVED EFFICIENCY for INCREASED PRODUCTION!

With STEHEDCO Electrical and Mechanical Drop Wires, the *"Watchmen for the Weaver"*...

Large stocks on hand guarantee prompt delivery of STEHEDCO Supreme Quality Drop Wires in all weights for all sizes of Warp Yarn, supplied in galvanized, copper, nickel finish and stainless steel.

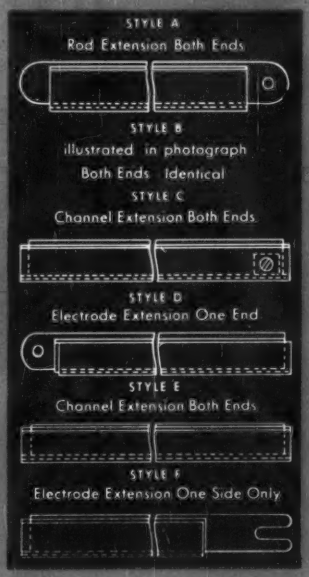
STEHEDCO facilities are more than adequately prepared to serve those mills requiring such services as refinishing *Old Drops* or repunching them for use with Drawing-in machines.

STEHEDCO Electrode Rods are made of Stainless Steel with Fibre Insulation and may be had with special plastic insulation of high dielectric strength, for use with electronic or other sensitive relays.

Ordering is simple:—

When ordering Drop Wire, Mechanical or Electrical, furnish sample or use the diagram illustrated. (to left) Designate style, Width, Thickness, and Finish desired.

When ordering Electrode Rods specify style and length. (see diagram to right).

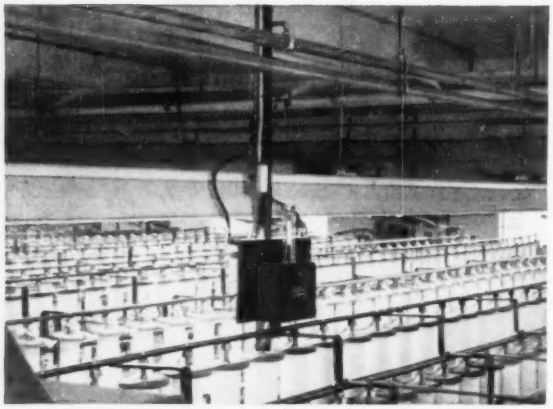


Stehedco and Southern
WORLD FAMOUS TRADE MARKS OF THE
Steel Heddle
Mfg. Co.

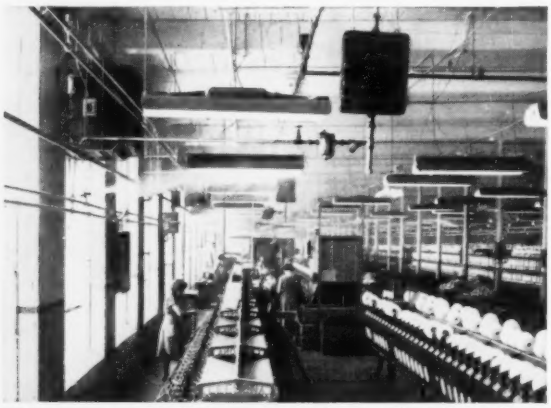
STEEL HEDDLE MFG. CO., 2100 W. Allegheny Ave., Phila. 32, Pa
SOUTHERN SHUTTLES Paris Plant...Greenville, S. C.
A Division of STEEL HEDDLE MFG. CO.
STEEL HEDDLE COMPANY OF CANADA, LIMITED
310 St. Hubert Street • Granby, Quebec, Canada

Other Plants and Offices: Greenville, S. C. • Atlanta, Ga., • Greensboro, N. C. • Providence, R. I.
Textile Supply Co., Dallas, Texas • Charles H. Dunker Co., Los Angeles, Calif • Albert R. Breen, Chicago, Ill.

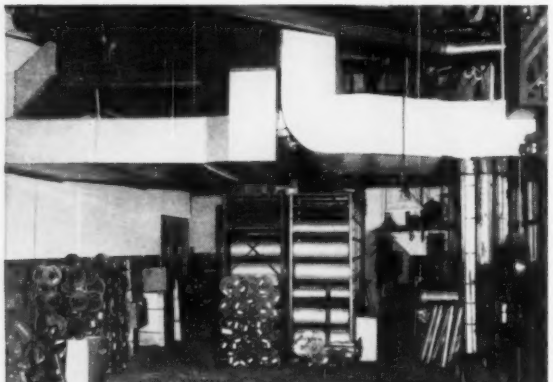
1-3-14



AMCO Humidification System installed at Caron Spinning Company, Robesonia, Pa. The highly sensitive AMCO Cyclestat Control holds humidity within narrow limits.



AMCO Evaporative Cooling System in Texas Textile Mills, McKinney, Texas. Note window units which control mixture of fresh and recirculated air.



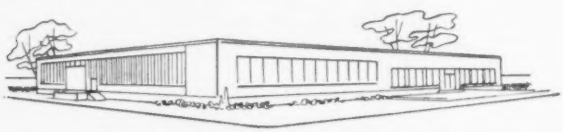
AMCO Unit Dry-Duct System at The Windsor Manufacturing Company, Philadelphia, Pa. The entire unit is installed overhead out of the way.

There's an AMCO AIR CONDITIONING SYSTEM designed for YOU!

When you think of air conditioning, remember that AMCO offers systems and equipment for every manufacturing requirement and every climatic condition. There are four different types of AMCO systems, alone or in combination: humidification, evaporative cooling, unit dry-duct, or central station air conditioning. And because AMCO engineers have these four basic systems — plus all associated equipment and controls — they are able to offer you unbiased advice on the *best* system for your particular need.

If you want the facts about textile mill air conditioning, with the advantages and limitations of each system detailed, as well as answers to such questions as cost, adaptability, capacity, maintenance and operating expense, write for AMCO's booklet, "AIR CONDITIONING for the TEXTILE INDUSTRY". Or better still, ask AMCO to recommend, without obligation, the system best suited to your mill.

AMCO Central Station Air Conditioning in the Roving Dept., Highland Park Mills, Charlotte, N. C. This is AMCO's highly efficient split-system.

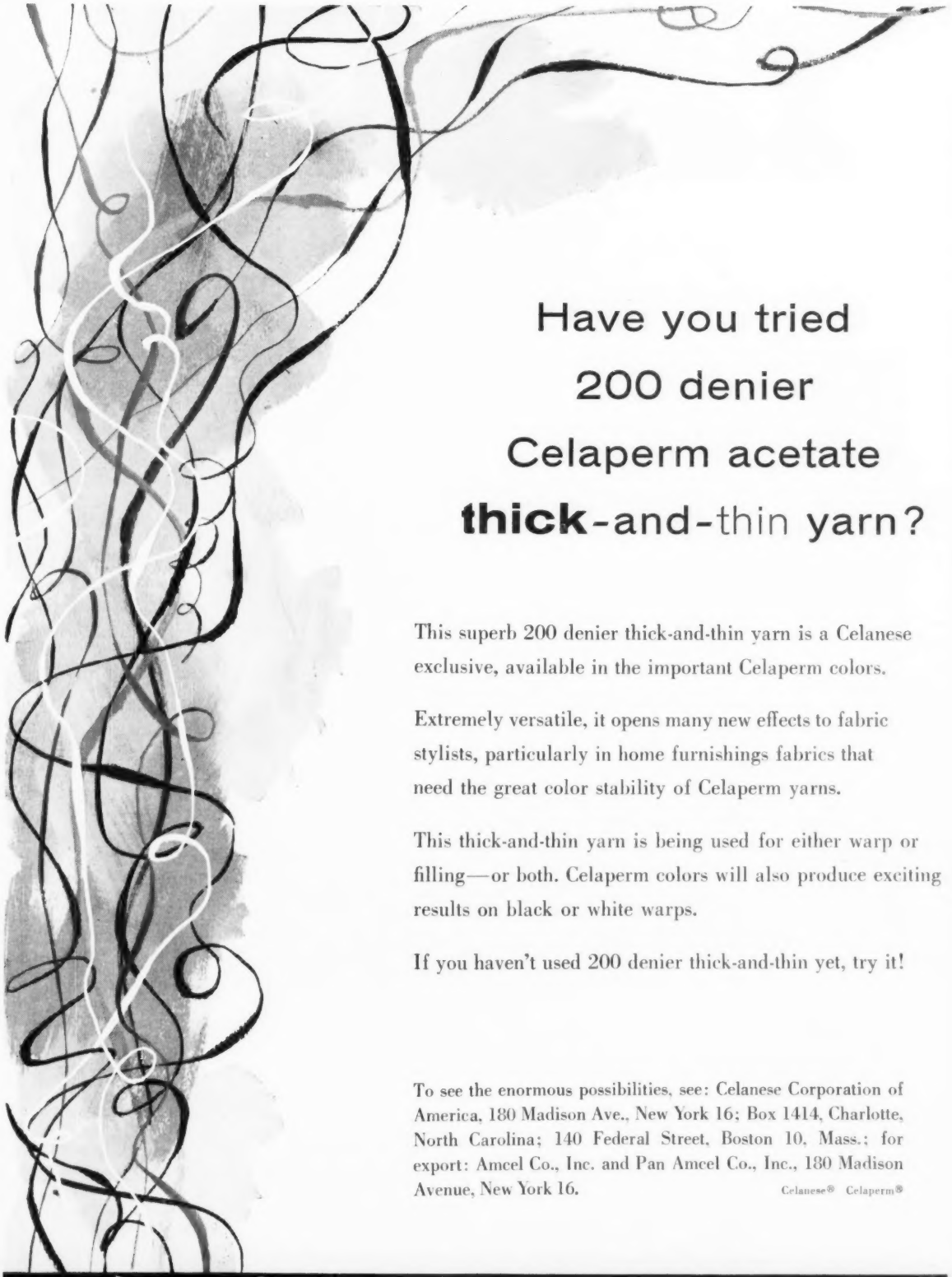


New Cleveland-Rowan Plant of the American Moistening Company. This modern plant is located at Cleveland, N. C. for the fabrication of duct work and sheet metal products.

AMCO

AIR CONDITIONING SYSTEMS since 1888

AMERICAN MOISTENING COMPANY, CLEVELAND, NORTH CAROLINA • ATLANTA, GA. • BOSTON, MASS. • CAMDEN, N. J. • PROVIDENCE, R. I.



Have you tried 200 denier Celaperm acetate **thick**-and-thin yarn?

This superb 200 denier thick-and-thin yarn is a Celanese exclusive, available in the important Celaperm colors.

Extremely versatile, it opens many new effects to fabric stylists, particularly in home furnishings fabrics that need the great color stability of Celaperm yarns.

This thick-and-thin yarn is being used for either warp or filling—or both. Celaperm colors will also produce exciting results on black or white warps.

If you haven't used 200 denier thick-and-thin yet, try it!

To see the enormous possibilities, see: Celanese Corporation of America, 180 Madison Ave., New York 16; Box 1414, Charlotte, North Carolina; 140 Federal Street, Boston 10, Mass.; for export: Amcel Co., Inc. and Pan Amcel Co., Inc., 180 Madison Avenue, New York 16.

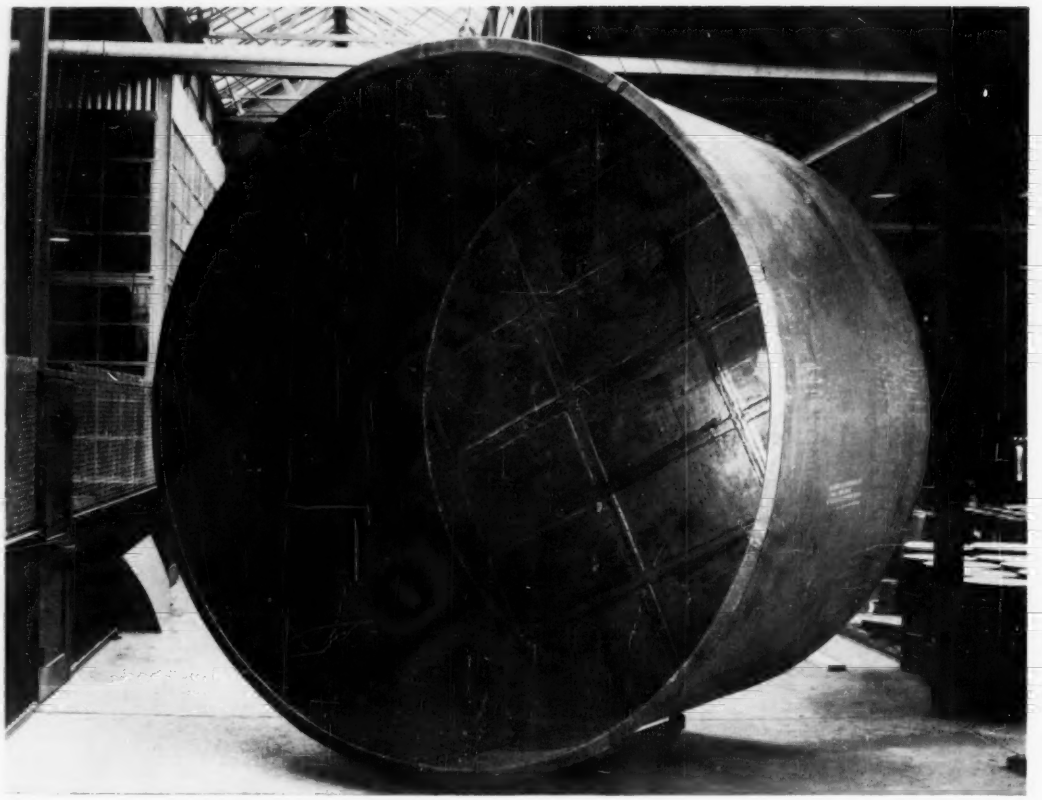
Celanese® Celaperm®

CELAPERM ACETATE | A Celanese CONTEMPORARY FIBER

HERECROL

REG. U. S. PAT. OFF.

Self-curing SYNTHETIC RUBBER SHEET LINING



The CARBON STEEL TANK shown above was HERECROL lined in our shops and later installed in a Wisconsin Paper Mill for liquid alum storage. HERECROL Sheet Lining is available in ⅛" and 3/16" thickness. Application may be accomplished in the field as well as in our shop. The following is a selection of solutions which can safely be handled in HERECROL lined equipment:

ALUM SOLUTIONS • AMMONIA SOLUTIONS
COPPER SULFATE • FERRIC SULFATE
HYDROCHLORIC ACID • HYDROFLUORIC ACID
NITRIC ACID • SODIUM HYDROXIDE
PHOSPHORIC ACID • NICKEL SULFATE
ZINC CHLORIDE • ZINC SULFATE

The HERECROL Self-Curing Synthetic Rubber Sheet Lining can be applied to steel tanks and other equipment unlimited in size. The reason for this is that no special equipment to provide heat or pressure is required. Storage tanks, processing vessels, tank cars, trailer tanks, pipes, fans, blowers, and duct systems have been successfully processed.

HERESITE & CHEMICAL COMPANY

Manitowoc, Wisconsin

Eastern Division: 546 South Avenue, Garwood, New Jersey

NEW SPEED and control...

ANOTHER U.S. ACME FIRST!

for YARNS AS LOW AS HALF TURN PER INCH

NEW U.S. ACME DOUBLER TWISTER

with revolutionary new mechanical feed roll clutch device

NEW TEN-INCH TRAVERSE DOUBLER-TWISTER HANDLES AS LOW AS HALF-TURN-PER-INCH YARNS AT SPINDLE SPEEDS OF 9000 RPM

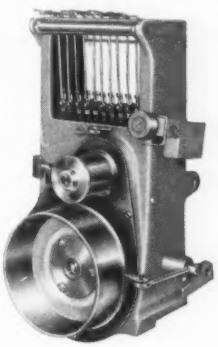
Primary twist operations are no longer a slow speed proposition! The new U. S. Acme Doubler-Twister will efficiently handle zero yarns as low as half-turn-per-inch at speeds of 9000 rpm—*three times the previous production of any primary twist on zero yarns!*

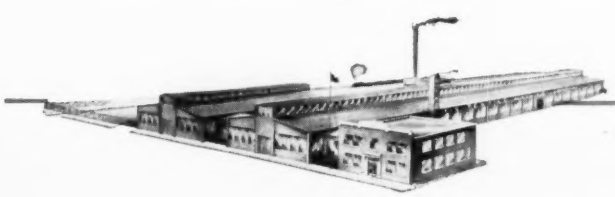
The machine features a revolutionary yet simplified new mechanical feed roll clutch device combined in one unit with dual stop motion controls, drop wires and thread guides. Two bolts hold the entire assembly to the main feed roll rail, and no adjustments are necessary.

This new Doubler-Twister is equipped with a lint-protected transfer oiling unit located directly above each feed roll unit. The creel will accommodate any available synthetic yarn packages, with the machine producing straight, conical, bottle-wind and pirn packages up to ten-inch traverse.

The operating mechanisms of this new machine are designed and positioned on a new unit arrangement for greater stability, higher efficiency, minimum maintenance and lower operating cost. Write or phone for full information . . . U. S. TEXTILE MACHINE COMPANY, Scranton 8, Penna.

Feed Rolls, Dual Stop Motion, Drop Wires and Thread Guides —in one complete unit!





U. S. TEXTILE

designers and manufacturers of
U. S. ACME MODERN THROWING EQUIPMENT

FOSTER-MUSCHAMP MODEL 66*

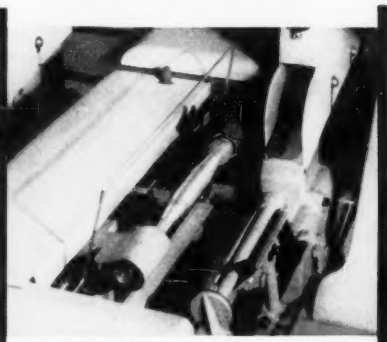
Automatic Filling Winder

A NEW HIGH IN WINDING QUALITY · A NEW LOW IN WINDING COSTS

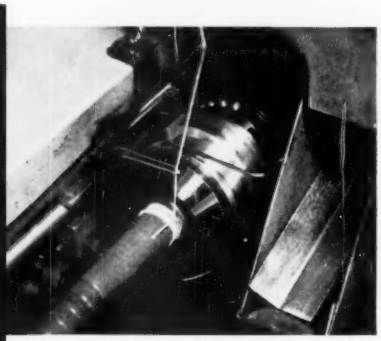
The Foster-Muschamp Model 66 Automatic Filling Winder produces uniformly perfect bobbins (without starting tails) with a spindle speed of 15,000 r.p.m. and with a winding cost as low as ¼¢ per lb. The following illustrations show some of the reasons why.

*Manufactured in Westfield, Mass.

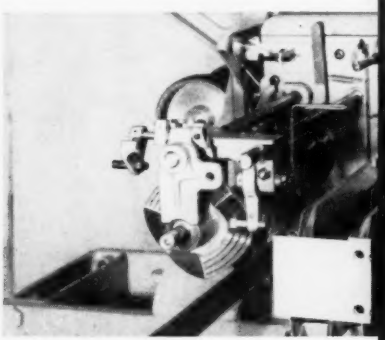
Straight line delivery from poteye to thread guide. No false tension. No undue strain on yarn.



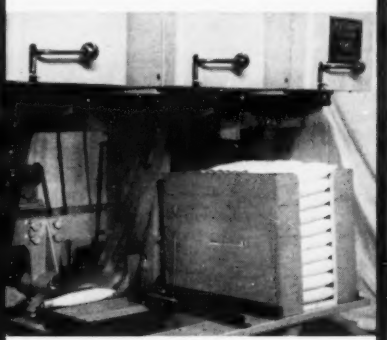
Feelerless build. Automatic donning and doffing of bobbins.



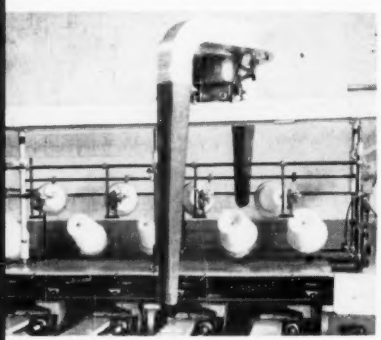
No starting tail. Secured under first wraps of bunch. Trapped alongside driver during transfer cycle.



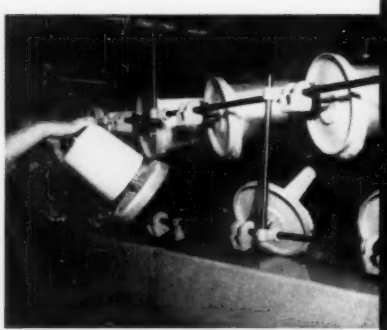
Exterior cam permits knots to be placed behind traverse and on outside of bobbin.



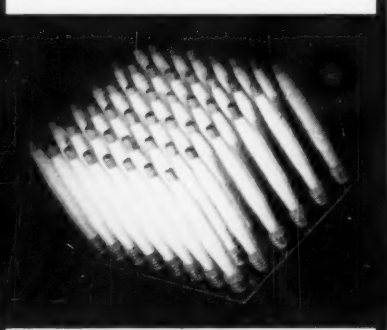
Automatic filling box stacker for spun yarns. (Automatic pinboarding for filament yarns).



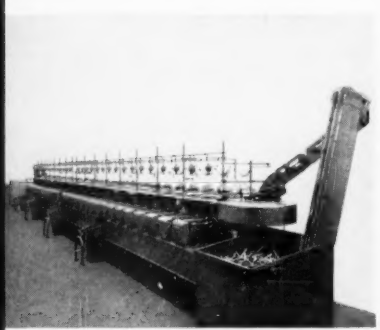
Automatic lint cleaner. Overhead traveling blower type.



Loading magazine creel. This and piecing up broken ends are only manual operations.



Model 66 bobbins. Note perfect build and uniformity. No starting tails.



Typical installation showing centralized empty bobbin hopper with capacity of 2000 bobbins.

Want to know more?
...Send for new Bulletin M4-A.
No obligations.

FOSTER MACHINE COMPANY
Westfield, Mass., U. S. A.

Southern Office — Johnston Bldg., Charlotte, N. C. · *Canadian Representative* — Ross Whitehead & Co., Ltd., 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont.

FEATURING ALL SEVEN

"TERGITOL" NONIONIC SURFACTANTS

Trade-Mark

NONIONIC NPX

versatile detergent,
wetting agent, and emulsifier

NONIONIC NP-14

oil-soluble emulsifier
and detergent

Nonionic NP-27

aromatic-soluble emulsifier
and wetting agent

Nonionic NP-35

water-soluble emulsifier and wetting agent
in presence of dissolved salts

NONIONIC TMN

wetting agent and penetrant
with good rewetting properties

NONIONIC NP-40

water-soluble emulsifier and
wetting agent above 100°C.

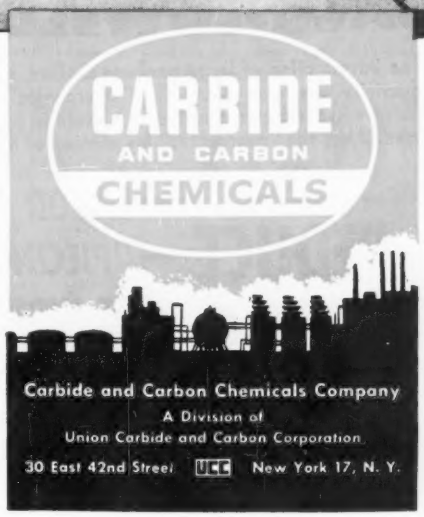
Nonionic XD

outstanding emulsifier
and low-foaming detergent

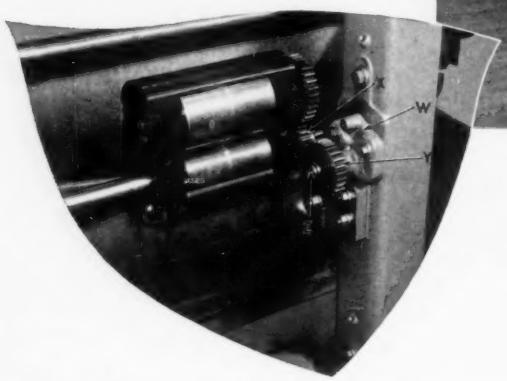
Here's a cast that gets top billing in the many different types of surface activity, thanks to the specialized talents of the individual performers. Because no one surfactant can play all parts equally well, CARBIDE has developed a large group of TERGITOL nonionics. Each one is carefully designed for maximum efficiency under specific conditions of performance. That's why —whether it's wetting, detergent, emulsifying, or dispersing action—a TERGITOL nonionic will fill the bill.

For more details on these outstanding products, call or write our nearest office for samples and further information. In Canada: Carbide Chemicals Company, Division of Union Carbide Canada Limited, Montreal and Toronto.

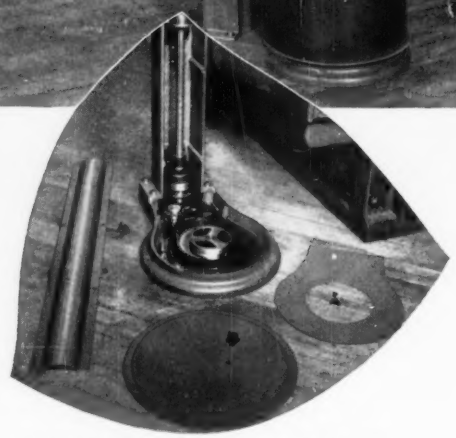
The term "Tergitol" is a registered trade-mark of Union Carbide and Carbon Corporation.



COILER HEAD. Note the clean, simple construction, and streamlined cover. The Calender rolls are mounted on anti-friction bearings.



COILER DRIVE is located close to calender rolls. X is driving gear; Y is driven gear mounted on rugged cannon shaft Z, which is carried in an adjustable bearing W. Shear pin is placed in hub of gear Y — if more than normal pressure develops, pin shears off and prevent damage to gearing.



BASE OF COILER. New type turntable unit makes doffing of large heavy cans much easier because a raised portion engages inside of can rim rather than old method of fitting can inside flange.

SACO-LOWELL 14" TO 18" COILERS

The introduction of large package Coilers, resulting in more sliver yardage per can, has greatly increased productivity per man hour. The "overcenter" lay used by these New Coilers produces a much more uniform pattern in the bottom of the can, thereby preventing sliver tangling which often occurs when a "butting" lay is used. Also, the "overcenter" lay eliminates hard cores, which tend to make stock pyramid in the center of the can.

REDUCE
— LABOR COSTS AS MUCH AS 30% *
— "PIECING UP" AT DRAWING UP TO 50% *
— RE-WORKABLE SLIVER WASTE OVER 50% *

* Based on actual mill tests.

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N.C. Sales Offices: CHARLOTTE · GREENSBORO · GREENVILLE · ATLANTA

In Slacks of Du Pont Fibers

PROVEN BLEND LEVELS PROMISE LASTING BENEFITS

For SALES and PROFITS that will continue to GROW...
PROMOTE and SELL these PROVEN BLEND LEVELS

DACRON
REG. U. S. PAT. OFF.
50% or more with wool
55% or more with rayon*
65% or more with cotton*

ORLON
REG. U. S. PAT. OFF.
35% or more with wool
75% or more with rayon*

DU PONT NYLON
15% or more for proven extra durability with wool, rayon or cotton

*ALSO WASH 'N' WEAR

Du Pont's 1957 national advertising and promotion program for slacks will support this proven blend-level concept.

P.S. **DACRON** and **ORLON** are our registered trademarks. When you use them: **Distinguish Them**—Capitalize and use quotes or italics, or otherwise distinguish by color, lettering, art work, etc. **Describe Them**—Use the phrase "'Dacron' polyester fiber" ("'Orlon' acrylic fiber") at least once in any text. **Designate Them**—As "Du Pont's trademark for its polyester (acrylic) fiber" in a footnote or otherwise.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

DISSOLVING WOOD CELLULOSE

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Shrinkage—(2%) . . . Coml. Standards CS 59-44. Textiles Testing & Reporting (Dept. of Commerce).

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Yarn slippage
DIMENSIONAL RESTORABILITY
Colorfastness . . . Cleaning dry and wet
Perspiration
Crocking
Sunlight
Atmospheric fading
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MODERN
TEXTILES MAGAZINE

December, 1956
Volume 37 Number 12

Publisher's Viewpoint

Exciting New Horizons for Man-Made Fibers

Ever-widening horizons and a constant movement forward into the unknown are basic conditions of the industries that produce man-made fibers and process them into useful consumer articles. Satisfaction with what has already been achieved, a willingness to stand still and be content with the present status of things is not the prevailing mood in our industry.

Buffeted by the pace of change in the field of man-made fibers, all of us on occasion may wish that events did not move so fast; that new fibers and new applications for established fibers did not thrust themselves upon us so rapidly. But in the long run most of us realize that a rapid flow of new products produced by our industry's research and development department is necessary and valuable.

For the well-being of our industry it is good that we are willing to welcome new fiber developments with enthusiasm. Such new developments are coming along and will be making their impact in the future on the entire textile industry. As evidence that the surface has only been scratched so far in the field of man-made fibers, we cite the words of a man who knows more about these matters than most of us.

Last month Dr. Carroll A. Hochwalt, vice president for research, development and engineering of Monsanto Chemical Co. gave us some hints of what we can expect in the future. In a speech, "Fashions in Fibers", given before the midwest section of the American Chemical Society, acknowledging a medal for his contributions to chemistry, Dr. Hochwalt told us that one yarn producer, for example, was working to build the best characteristics of wool and cotton into the molecular backbone of the synthetic through the use of block and graft polymerization techniques.

This effort attempts to "blend two groups of molecules together in a common solvent and then to spin the progeny of this wedlock. To illustrate—cyanoethylated cotton, cellulose acetate, and other polymers have been brought into a molecular blend with Acrilan and Orlon to create products with properties quite different from parent fibers."

Other significant new developments mentioned by Dr. Hochwalt are the fiber-forming possibilities of isotactic polymers and synthetic polypeptides. "Typical starting materials for isotactic polyolefins", he said, "are propylene and butylene." Both of these raw materials come from petroleum and are cheap and abundant. Research has shown, Dr. Hochwalt said, that isotactic polymers are believed to be as strong or stronger than nylon and that fibers can be formed from them which yield silk-like or wool-like yarns.

The polypeptides, he said, have yielded synthetic protein fibers, "formed from long chains of amino acids, which produce material of silk-like character." These developments may mean, Dr. Hochwalt said, "that true synthetic protein fibers may be in the offing." He added that "the day may be coming when man will be producing fibers so similar in structure to those produced by the silkworm and the sheep that even Mother Nature, I think, will have trouble telling them apart."

In view of this testimony from so eminent a research scientist, who can deny that the man-made fibers industry is one of exciting new perspectives and unexplored territories?

A. H. McCullough

PUBLISHER

OUTLOOK IN TEXTILE MARKETING

By ROBERT C. SHOOK, Textile Economist

Promotion of man-made fibers now stressing sound values, avoiding sensational claims

Several years from now, when we look back at textile developments in the post-war period, it seems likely that 1956 will be identified as a turning point for the synthetic textile industry.

In one sense, 1956 has been a bad year for textiles. The industry has suffered a cyclical decline from the peaks reached last year. Nevertheless, it has become clear that a change in textile merchandising is taking place. At the very least, this will strengthen the synthetic division of the industry. At most, it may strengthen the industry as a whole in its competition with producers of other types of consumers' goods. It is a change that finds its source in the merchandising policies of synthetic fiber producers.

Early Promotion Made Use of Exaggeration—When the new synthetic fibers were put on the market, it was recognized that they needed an introduction to the consumer. National advertising campaigns blossomed over night, dramatizing the most striking qualities of these new textile raw materials. Interest was immediate, and so intense that a fiber name alone quickly became a powerful sales incentive. And this, of course, led to serious trouble. Too many people began to use the new fibers simply for their name and not for their qualities. Fiber reputations were threatened, and new policies of new fiber merchandising had to be organized.

More Sober Approach Developing—It is in this sense that 1956 may turn out in retrospect to have been a good year for synthetic fibers. It is the year in which marketing problems began to receive the same concentrated attention by fiber producers which, in the past, had been reserved for problems of technology and development. It is the year in which distribution and merchandising gained powerful support from the human and financial resources of the big, basic producers.

Specifically, what has begun to happen is the gradual development of value standards, which can be recognized by the retail buyer and by the consumer. Fiber producer advertising no longer promotes a fiber—it promotes an identified fabric or garment containing the fiber. And it only promotes the fabrics and garments which, it is believed, will provide satisfaction. Where earlier advertising had the effect of endorsing *every* product that contained a specified fiber, present advertising supports *only* the products that represent a sound and recognizable value.

This evolution of merchandising policy is by no means complete. Sometimes the value standards are implied rather than stated. There is no uniform practice in identifying the finished products which receive support—sometimes a label is used, but more often not. Nevertheless, the intent is unmistakably clear—to define good quality, too identify it and support it, and to encourage good styling.

Standards Must Be Publicized—There has been much talk in the textile industry, and in associated trade groups, about minimum quality standards. Proposed standards, more or less industry-wide, have been available for use for some time. But their use has so far been limited, probably because they have no established sales appeal. There has been no big advertising and promotion budget, for example, with which to sell the rayon and acetate standard, L-22 of the American Standards Association to the consumer. A label showing conformity with these standards does not now mean much to the consumer, and will not mean much until these standards have been promoted extensively over a period of time.

(Continued on page 57)

Vice president and research director, A. W. Zelomek Associates, Inc., 350 Fifth Ave., New York City.

Personality

Unyielding adherence to high quality goods, tested belief in the value of modern equipment, a deep regard for workers' welfare — these are the pillars of Walter Regnery's successful management of a big cotton mill

Joanna Workers Know (and Like) Their Boss

By James Walker

THE pleasant mill village of Joanna in the rolling green countryside of Laurens County, South Carolina is a long way in miles and prevailing social climate from the lonely mining country of northern Ontario or even the Chicago suburb of Hinsdale. But in many ways the gap has been less for quiet Walter Regnery, head man at Joanna Cotton Mills. Regnery still possesses the eternal optimism of the mining prospector he was for several years. And he practices the principles he learned as a boy in Hinsdale from his father that the human element is the most important thing in industry.

To this optimistic spirit and deep concern for human values, add a desire for the highest quality production and for technological progress and you have a measure of the man.

Walter Regnery started out to be a mining engineer. Even earlier his scientific persuasion had led him to enroll at Massachusetts Institute of Technology as an electrical engineering major. But, as he points out, all basic engineering is the same and what he learned as an electrical engineering student has been of great value to him in his later mill management.

In 1937, he went to northern Ontario, where he had staked out a claim to several thousand acres on a sandy lake. He then set out in the difficult and usually unrewarding job of mining prospector. For a time this appealed to him, but his enthusiasm gradually waned, dampened by his awareness that rarely does more than one in 25 who spend a lifetime prospecting hit upon a valuable claim. Government restrictions imposed by Canada when World War II started also lessened his interest, and he decided that he wanted to raise a family somewhere else than in the wilds of Canada.

NO STRANGER—Walter Regnery is inside the production areas of Joanna Cotton Mills generally twice a day—early in the morning and again in mid-afternoon. He believes in seeing for himself how things are going

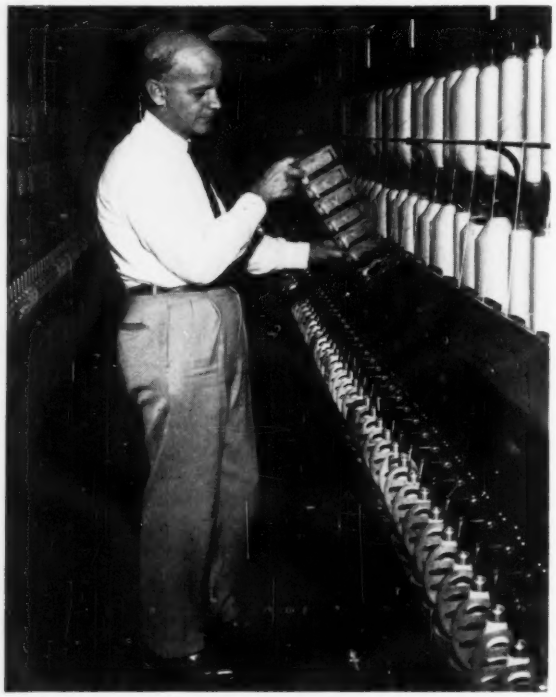
"Father was quite pleased," he recalls, when he decided to come to Joanna, in which the Western Shade Cloth Co. (now Joanna Western Mills Company) had acquired an interest in 1927, and later had acquired outright.

Though he had been exposed to the textile manufacturing business in a way since the Regnerys bought Joanna, he knew really very little about the inside of a textile mill. But he would learn, from the opening room up.

William A. Moorhead, who was connected with Joanna Mills for 40 years (from 1920 to 1948 as general manager), assigned the young man to work on waste problems in the mill. For several months previously he had studied assiduously all the various phases of the operation. For the next few months he applied himself to the problem of waste, a problem, incidentally, which occupied his deep concern until now.

By "digging in and sticking to it", he says, and by applying his "steel trap" mind to the problem, as an associate puts it, Regnery came up with some sound ideas on the problem.

Speaking about waste, he says: "A machine accounts for a certain amount of waste. You make a



THROUGH THE MILL—When he started with Joanna years ago, Walter Regnery learned by doing how cotton yarns and fabrics are made. Today when he wants to find out how equipment is functioning, he knows how to look for himself.

change. There is less waste. You apply this to the whole operation. It is a never ending process, educational as well as technical, because it is tied to the human element. You must never let up. Let up for a moment and waste goes up. Bear down and waste goes down."

William Moorhead died in a plane crash at Washington in January, 1948, and young Regnery, who had been in training for the job, stepped up to general manager. While Moorhead had operated pretty much a one-man shop, Regnery has developed a strong, and relatively young management team: J. B. Hart is assistant treasurer of the parent firm and office manager and treasurer of Joanna Cotton Mills. He has been employed by the firm since 1923. Joe Delany, New England-born general superintendent, "was thrown in with the deal" (Delany himself says) when the machinery of a defunct Lowell, Mass., plant was bought in 1928. With Regnery, they make the policy and carry out the program that has kept Joanna abreast of and in many instances ahead of the majority of single units. Allen Barron is assistant secretary and the mill's cotton buyer.

Starting in 1946, when the number of spindles was increased to 103,176, to the present, approximately $6,000,000 has been spent on modernization and expansion.

When Moorhead's death occurred, it is said that Walter Regnery did not even have a private office. But, unassuming, modest, informal almost to a fault, this would hardly have bothered him. For an example of his informality, while his predecessor had used a buzzer system to summon subordinates, Regnery often will walk around to see the employe himself.

He visits inside the mill as often as possible, usually in the early morning and then again shortly before 2 p.m., and wishes that he could spend more time there. His visits are not simply a walk through the mill for appearance's sake, though he is happy to keep up a friendly relationship with his employes in this way; he is quietly looking to see how things are going, always with an eye to improvement.

"Walter Regnery is one cotton mill president who can actually tell you what makes a loom operate. He can talk the language of the loom fixer in that respect," an associate says of him.

Though he gives credit to spinning room employes for the idea, his inventiveness accounted in 1946 for the development of a satisfactory warp spindle adapter that would permit the use of larger package paper bobbins on existing spindles. This was at a time when manufacturers were not promising delivery of the larger spindles for four years or longer. While the adapter has since been replaced, in his mill at least, by ball bearing high speed spindles, the device met a real need then, at a saving of $1.65 each over new ones. More than 2½ million of the adapters were manufactured and used at Joanna and in other mills. One order for 300,000 came from his good friend, Elliott White Springs.

Believes in Co-operative Action

Walter Regnery's devotion to technical progress goes far beyond the immediate dollars-and-cents needs of his own company. He has long been a champion of co-operative research efforts aimed at benefiting the entire textile industry. One outstanding manifestation of this concern has been Regnery's steadfast devotion to the Institute for Textile Technology. Organized in 1944, the Institute is a non-profit research and educational organization located in Charlottesville, Va. It is supported by dues paid by member textile companies.

When it was first organized, the Institute largely devoted itself to basic research in textiles. In 1949, however, many of its members came to feel that the Institute could expand its usefulness by including in its work research on specific and practical mill problems. Walter Regnery was strongly of this opinion, too. He was appointed by the trustees to head a new technical advisory committee whose function has been to guide the Institute's work in the direction of more immediate and practical research.

He devoted much of his time to this new assignment. As a result of his efforts and the efforts of others interested in the Institute, such as Roger Milliken, the trained researchists of the Institute have

(Continued on page 59)

KEY MEN ON JOANNA'S TEAM—J. B. Hart (left) is office manager and treasurer. Joe Delany (right) is general superintendent

How IRC Nylon

Part 3

Behaves in carpets

By Dr. T. G. Finzel and Dr. S. M. Fok
INDUSTRIAL RAYON CORPORATION

In this third of four articles[1,2] based on a study of carpets made of Industrial Rayon Corp.'s New Nylon blended with rayon, a report is presented on the crush, recovery and matting characteristics of the carpets as determined by actual floor tests. Of comparable importance to the results of the tests is the good correlation that is shown between these floor tests and the previously reported laboratory tests.[2]

In the next and final article, the results of floor tests of other properties of the carpets will be reported.

The construction of all carpets in this study was 3/16 inch gauge tufted, 7½ stitches per inch, ⅝ inch pile height with approximately 32 ounces of pile weight per square yard. The yarns were all 2/2 c.c. (53/2 woolen count or 840 yards/lb.) 4.25 "Z" x 4.75 "S" made of 15 denier x 3" bright staple.[1]

TWO SIGNIFICANT conclusions were reached as a result of the floor test phase of this study of seven different blends of IRC nylon and rayon carpets. One was the very clear evidence that the inclusion of IRC nylon in the rayon blended carpets has a favorable effect on the crush, recovery and matting characteristics of the carpets. An increase in the amount of nylon in the blend results in a higher degree of improvement. The second was that the results of the laboratory tests were confirmed by the floor tests, indicating that it may now be possible to realize considerable saving of testing time by using these specially-developed laboratory methods in place of the time-consuming floor tests.

In the laboratory tests,[2] the crush, recovery and matting of the carpets were studied under both static and dynamic conditions. As generally defined in the carpet industry, crush is the extent to which the pile is compressed under pressure; recovery is the amount of height recovered by the pile after removal of the pressure, and matting is the difference between the original and regained pile heights. The floor tests of course were conducted only under dynamic conditions and comparisons of the results of the floor and laboratory tests are consequently related to the dynamic phase of this study.

In a brief recapitulation, the dynamic laboratory tests were divided into three segments, simulating—

(a) the first step on a new carpet
(b) a moderate number of steps
(c) an extremely large number of steps.

In the floor tests, the carpets were placed in a well-travelled corridor and were examined at regular intervals for crush, recovery and matting by methods similar to those used in the laboratory tests. These floor tests were terminated after the pedestrian count had reached 32,000 at which stage the compressional behavior factors had levelled off to a fairly constant rating for each carpet, indicating for all practical purposes completion of the tests. Fig. 1 notes the results of these tests for 100% IRC nylon carpets and 100% rayon carpets. The results of the tests for the blended carpets generally follow a similar curve pattern for matting and recovery, falling between the two extreme ratings shown in Fig. 1.

In substantiation of the laboratory tests, the floor tests revealed that IRC nylon will materially increase the recovery and decrease the matting in nylon-rayon blend carpets without any noticeable influence on the crush.

These floor tests show that after a pedestrian count of 32,000:

The recovery of the 50% nylon-50% rayon carpet is 56%; the recovery of the 100% nylon carpet is 61%, and the recovery of the 100% rayon carpet is only 48%. Although the blend contains 50% nylon the improvement actually is equivalent to more than 60% of the recovery difference between all-nylon and all-rayon.

The matting of 50% nylon-50% rayon carpet is 34%; matting of the 100% nylon carpet is 28%, and matting of the 100% rayon carpet is 41%. In this case, the improvement in the blend amounts to

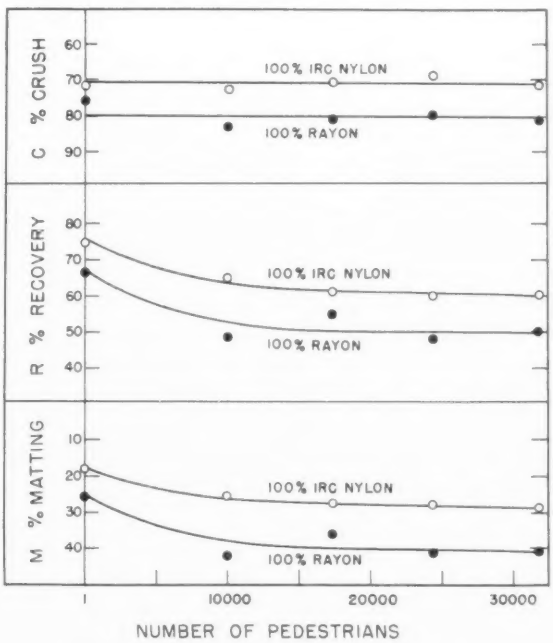


Fig. 1—Typical Carpet Performance in Service

54% of the matting difference between all-nylon and all-rayon.

The improved performance of all blends due to IRC nylon is noted in Table I and plotted in Fig. 2. The calculated infinite results, based on the laboratory tests, also are included for comparison in both Table I and Fig. 2.

TABLE I
FLOOR TESTS VS. DYNAMIC LABORATORY TESTS

Carpet Sample	Crush, %		Recovery, %		Matting, %	
	Floor Test	Calc. Infin. Cycle	Floor Test	Calc. Infin. Cycle	Floor Test	Calc. Infin. Cycle
100% Nylon	71	72	61	61	28	29
50% " , 50% Rayon	77	77	56	51	34	38
40% " , 60% "	79	76	51	48	38	40
30% " , 70% "	77	76	53	42	36	45
20% " , 80% "	78	77	51	49	38	40
10% " , 90% "	82	75	49	41	42	46
100% Rayon	79	76	48	42	41	45

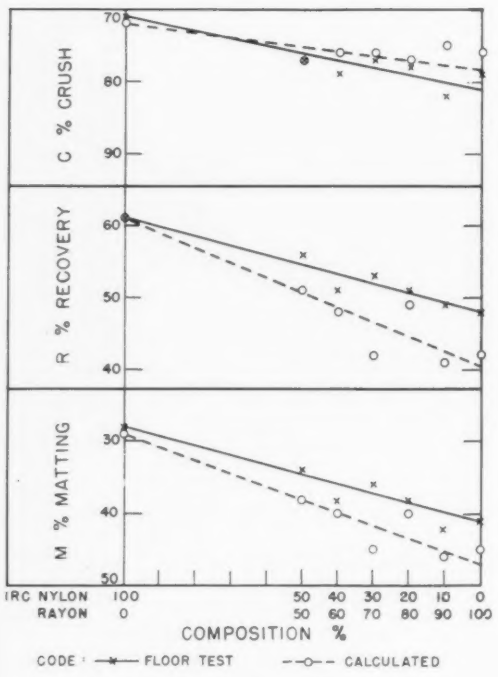


Fig. 2—Floor Tests vs Dynamic Laboratory Tests

The close relationship of the results of the floor tests with those of the laboratory tests described in the previous article bolsters the belief that laboratory methods may be completely adequate for determining the compressional behavior of carpets.

In comparing the laboratory and floor test results, it should be noted that the pedestrian count of 32,000, while representing long service, is still a finite number in contrast to the infinite number calculated in the laboratory test. The calculated infinite results indicate the limiting values which might be expected after the carpets had been subjected to an infinite number of steps in a floor test. The comparison shows:

(a) There is little difference in crush in the results of both tests. This might be anticipated from Fig. 1 which indicates that crush does not change materially with an extended period of use.

(b) The percent of recovery as calculated by the infinite cycle method is either equal to or less than the corresponding floor test value. This can be explained by the fact that the floor test data were obtained after a definite number of steps and therefore had not reached the limiting values indicated by the calculated infinite cycle results.

(c) In the case of matting, the calculated infinite cycle value is always higher than the corresponding floor test figure for any given carpet sample. The calculated value indicates the theoretical limit of matting which probably is never reached in a practical floor test.

TESTING PROCEDURE

Floor Service Test

After the original thickness of the carpet sample had been measured, and data for the infinite cycle test were obtained on the Instron Tester, the carpet was placed on the floor of a hallway where the traffic rate averaged 700 per day. The first Instron cycle was considered to be the first step placed on the carpet in the floor service test and is so noted in Fig. 1. Carpet samples were rotated in such a manner that a single position never exceeded five days. Instron measurements were made at the end of each 5-day period after the carpets had been removed from the floor and thoroughly vacuumed.

All service data were determined on the most travelled area of each carpet. The test was terminated after the pedestrian count had reached 32,000 at which point both the recovery and the matting characteristics of the carpets seemed to level out as shown in Fig. 1.

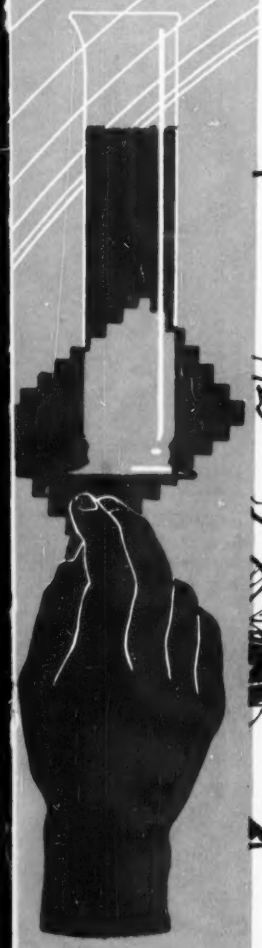
❖ ❖ ❖

Although nylon has markedly superior recovery and matting characteristics, it contributes to an even greater degree to the wearability of carpets, which will be discussed in the next article of this series.

REFERENCES

1. Finzel, T. G., and Romer, M., *Modern Textile Magazine*, **37**, 33 (Oct. 1956).
2. Finzel, T. G., and Fok, S. M., *Modern Textile Magazine*, **37**, 39 (Nov. 1956).

DYEING and FINISHING Section



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Mothproofing Carpets

Consumers want mothproofed wool carpets and mothproofing is easy and not expensive. Here's how Whittall applies a permanent mothproofing finish.

STAFF PREPARED

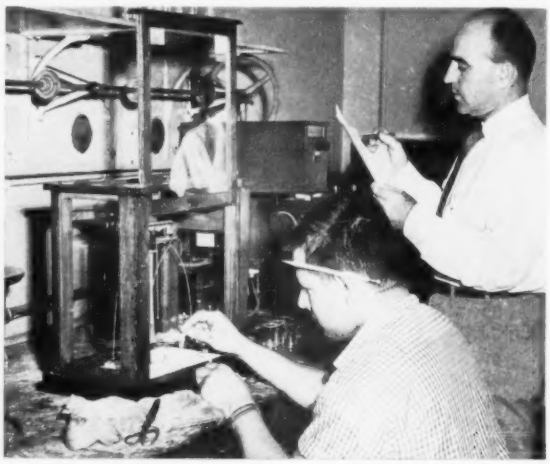
OPEN-LINE carpets are being mothproofed by one manufacturer with more expected to follow. Whittall, a wholly owned subsidiary of Roxbury Carpet Co. are mothproofing their Finlandia line of area carpets and their Criterion line of broadloom carpets. The mothproofing agent is Mitin, a chemical of Geigy Dyestuffs, a division of Geigy Chemical Corp. Whittall began using Mitin on its contract carpets three years ago. The mothproofing agent demonstrated its effectiveness and so pleased carpet buyers that the company decided to broaden its use of this form of insurance against moth and beetle damage to floor coverings.

Mitin is dissolved and added to the dyebath and generally is applied at the same time as the dyestuffs. Mitin may be applied simultaneously with all wool dyestuffs (basic colors excepted). Mitin is a complex chemical—dichloro-diphenyl ether dichloro phenyl urea—in the form of white powder which is readily soluble in water.

The product is extremely versatile and is compatible with currently used wool dyestuffs (excepting basic colors). It may be applied directly in the dyebath in raw stock, yarn or piece. Two per cent of the dry clean weight of the wool generally is recommended with the dissolved Mitin being first added to the dyebath, run hand-warm for 5 to 10 minutes. The dissolved dyestuff is then added and dyeing procedure follows as customarily. Goods and dyebath should be, if anything, on the acid side.

Mitin is fixed to the fibers, which it penetrates thoroughly, in 15-20 minutes, long before the dyes are fixed. Maximum efficiency and fastness are obtained at 160°F or better. Multi-colored pieces, with considerable white, may be aftertreated under conditions recommended and this is accomplished within 20 to 30 minutes after reaching maximum permissible temperature.

MOOTHPROOFING CHEMICAL IS DRY POWDER—It is added to dyebath and becomes chemically fixed long before dyeing is completed. Mothproofing is effective for the usable life of carpet fabric.



CHECK AND DOUBLE CHECK—Finishers using mothproofing chemical must furnish regularly yarn samples to manufacturer. Here manufacturer's technicians make weight test on yarn samples to make sure sufficient mothproofing chemical has been applied.

Once applied, Mitin remains on for the usable life of the fabric despite frequent washings or dry cleanings. It doesn't alter the shade of the fabric nor change the hand and is odorless. Tests have shown that Mitin's effectiveness is not reduced by exposure to light, weathering, abrasion, or rubbing. Finishing operations, such as decatizing, singeing, tentering, napping and shearing have no influence on the mothproofness of fabrics processed with Mitin. Although it is lethal enough to kill moth larvae outright, and to exterminate young carpet or furniture beetle grubs and repel older larvae, Mitin is non-toxic to humans and animals. It is estimated that Mitin adds about 5¼¢ per pound of wool.

The extent of wool destruction by moth and beetle larvae has been placed at 22½ million pounds per year, enough to clothe more than one million people. It has also been estimated that the progeny of just one female moth in four cycles of a year can destroy almost 100 pounds of wool. Dollarwise, wool damage by insects has been estimated at between $200 and $500 million annually for the U. S. alone. The worldwide total is many times this figure. Temporary moth protection measures cost U. S. housewives more than $66 million annually, and cold storage of moth-damageable possessions runs another $22 millon.

When a mill signs an agreement with Geigy to use Mitin, it promises to supply the company with samples taken periodically from practical runs. These swatches are sent to Geigy's headquarters, where they are put through a chemical analysis test to determine the percentage of Mitin actually in the fabric

(Continued on page 50)

Allied Chemical's

caprolan®

tensile-tough nylon

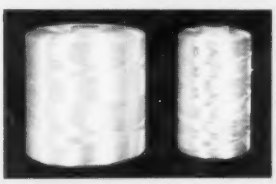
NYLON HEAVY YARNS

COMBINE DURABILITY, EASE OF DYEING, NEW SURFACE INTERESTS

Where beauty must be durable, Caprolan *deep-dye* nylon heavy yarns (2,000 denier and up) make it easy to obtain uniform shades of high fashion colors in high strength nylon yarns.

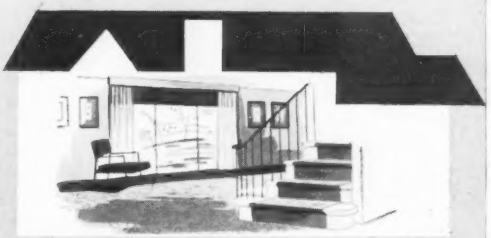
The product of over 12 years' original research by Allied Chemical, Caprolan has all the qualities normally expected of nylon and some new ones of its own. Most important of these for decorative fabrics is an unusual affinity for almost any class of dyestuff. When Caprolan is combined in fabric with other nylon, the greige goods can be dyed in a single bath to give new and interesting tone-on-tone effects.

Caprolan offers you completely new design opportunities, as well as excellent hand and unusual and lasting whiteness, with no appreciable yellowing in storage. Available for both decorative and industrial fabrics, Caprolan heavy yarns can be engineered to your specification from 2,000 to as high as 50,000 denier. It can be ordered on knotless 30-pound and 10-pound parallel, non-returnable tubes, providing you longer runs between creelings, shorter conditioning cycles, ready dyeability, and the elimination of costly finer denier inventories. For more information about Caprolan nylon heavy yarns, call or write us today.

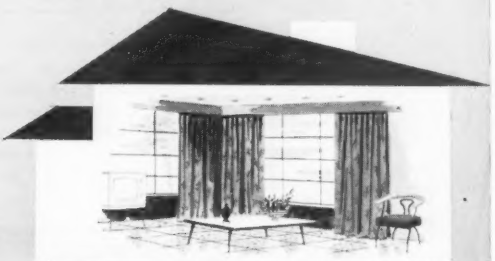


KNOTLESS 30-LB. AND 10-LB. PACKAGES ON PARALLEL, NON-RETURNABLE TUBES!

Upholstery



Carpets



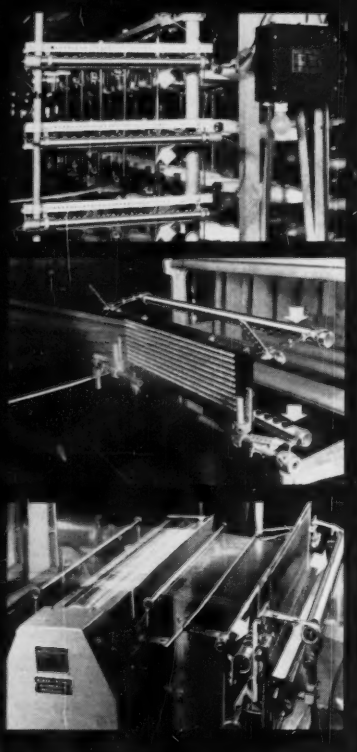
Draperies

Fiber Sales and Service Allied Chemical *National Aniline Division*

261 Madison Avenue, New York City 16, N. Y.

Branch Offices—Jefferson Standard Building, Greensboro, N. C., 200-204 S. Front St., Phil. 6, Pa., 15 Westminster St., Providence 3, R. I.

Robert Reiner, Inc., recommends the SIMCO "Midget" Static Eliminator for unthrown yarns!



● Every application of the SIMCO "*Midget*" on a creel or warper to date has given outstanding results—a perfect, evenly tensioned, ridgeless warp beam. It is the most efficient neutralizer for high speed operations . . . yet it is lowest in cost! Write for full information today.

the SIMCO company
920 Walnut Street, Lansdale, Pa.

Vinyl Outerwear Fabric

A new vinyl material for outerwear, backed with cotton jersey, has been introduced by Jason Corp., Hoboken, N. J., weighing 20 to 22 ounces and tradenamed Sofgrane. It comes in a wide range of colors. It is said to have good resistance against crocking, scuffing, and peeling. The new material is 54" wide and prices range from $1.35 to $1.65 per yard, depending upon color.

Chemnyle Process with Optical Bleaches

Chemstrand Corp.'s new Chemnyle filament nylon dyeing process can also be used with a number of optical bleaches, according to Walter H. Hindle, textile research director for the company. He told the Midwest Section of the American Association of Textile Chemists and Colorists that applying certain optical bleaches by the Chemnyle process "gives extremely uniform results," and that 100 dyeing and finishing companies here and abroad had already applied for a license to use the new process.

In summing up the results of commercial tests of the Chemnyle process, which uses dye assistants to modify the application of existing acid and direct dyestuffs, Hindle said: streakiness has been eliminated or reduced to an acceptable minimum; good washfastness has been obtained at 120 to 140 degrees F.; lightfastness is that normally associated with acid and direct dyestuffs on nylon; shades of a brilliance not normally associated with filament nylon may be obtained.

Roberts Co. Offers Stock

Under a new financing program, $1,000,000 in new capital stock has been authorized for public sale by Roberts Co., Sanford, N.C., manufacturer of spinning machinery. A substantial portion of the new capital stock has already been subscribed for by a group of Sanford residents. Roberts Co. was founded in 1947 by Robert E. Pomeranz, who had owned and controlled all shares of stock in the firm. New capital stock, it was reported, should provide the firm the strengthening necessary to meet the growing demand for its products.

NOW!

use all the size you need with nylon yarn

it stays flexible with

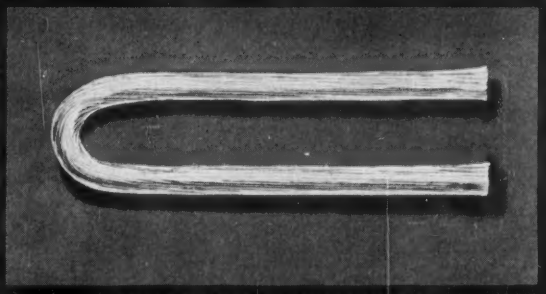
NOPCOSIZE® N

Now it is possible to apply extra heavy sizing to low twist nylon yarn—even producer's twist—and still get flexibility. Nopcosize N is *internally plasticized* to permit you the greater depth of size protection needed to avoid filament breakage.

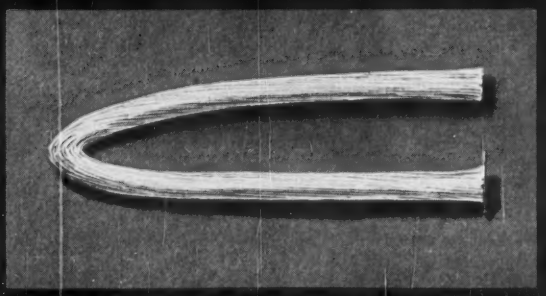
Mill tests on producer's twist yarn have proven eminently satisfactory.

Try this outstanding size on your warps and prove it to yourself.

Nopco Chemical Company, Harrison, N. J.



SIZED WITH 2¼% NOPCOSIZE N



SIZED WITH 2% CONVENTIONAL SIZE

These enlargements show the much greater flexibility of nylon yarn sized with Nopcosize N.

NOPCOSIZE N—

your best defense against:

FILAMENT BREAKAGE

TEAR DROPS

ABRASION

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PLANTS: Harrison, N. J. • Cedartown, Ga. • Richmond, Calif.
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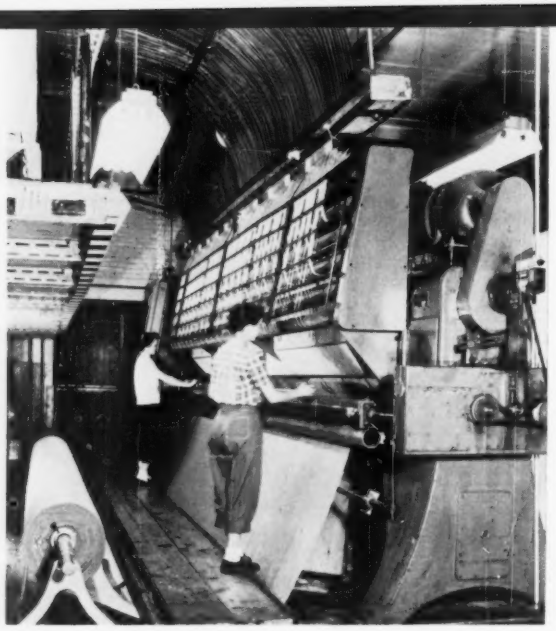


MACHINE AT WORK—At James Lees' Bridgeport, Pa., plant, yarns for this tufting machine are fed to needles through overhead tubes.

INSPECTION IS IMPORTANT—At Lees' Bridgeport plant, an inspector inserts missing tufts with a hand mending gun.

The "Fourth Weave"

How tufted carpets are made

Tufting machines produce more at lower cost than looms. They have brought back profits to the hard-pressed carpet trade

STAFF PREPARED

PRODUCTION of tufted floor coverings, "the fourth weave" as the method is sometimes called, continues to be one of the most forward-moving areas in textile manufacture. (The other three major carpet weaves are axminster, wilton and velvet.) The growth of tufted floor coverings is brought home forcibly by these figures: in 1951, total U.S. output of tufted rugs and carpets over 4 x 6 feet was 6 million square yards. Last year output was more than 46 million square yards.

The tufting industry last year also turned out another 31 million square yards of scatter rugs and bath mats 4 x 6 feet and smaller. Dollar volume of tufted floor coverings last year was $218,942,000. The importance of tufted floor coverings is also indicated in terms of percentages. Last year more than 40% of all carpets and rugs produced in the United States were made on tufting machines.

Tufting has caught on rapidly in the floor covering field, because carpets can be made much faster by tufting than by weaving. It has been estimated that tufting machines can produce carpets 12 to 15 times faster than looms. Herbert L. Shuttleworth, president of Mohasco Industries, Inc. a Company formed last year by merging two well-known carpet manufacturers, Mohawk and Alexander Smith, recently pointed out that a tufting machine along with creels can be bought for about $27,000 while enough looms to equal the production of one such tufter would cost about $350,000. He added further that auxiliary equipment needed to go with the looms would cost another $200,000.

Today tufted carpets are being made in more than 100 mills some of which make other products, of course. For tufting, the industry uses cotton, rayon, nylon, acetate, saran and wool. In recent years use of man-made fibers, chiefly rayon, has grown rapidly. Formerly tufters used cotton almost exclusively. In 1951, for example, the industry used 103,654,000 pounds of cotton and only 1,600,000 pounds of other fibers. But in 1955, tufters consumed 140,330,000 pounds of cotton and 107,232,000 pounds of other fibers, mostly rayon. Currently there is a tendency for carpet tufters to use more wool as they increase their production of broadloom carpets.

How Tufted Carpets Are Made

A tufted carpet is not woven on a loom but made on a tufting machine which works in this fashion: a piece of yarn is punched down through a fabric by a needle, caught by a hook and held, and then withdrawn through the fabric, forming a tuft. The fabric through which the yarn is punched by the needle is called a "backing fabric". It is usually cotton duck or heavy jute cloth.

Tufting machines, such as those in use at the Bridgeport, Pa., plant of James Lees & Sons Co., have over a thousand needles. The cotton or jute backing cloth is fed from a roll into the tufting machine. As the backing cloth passes under the needlebar extending across the width of the fabric, the needles place the tufts in the cloth in any desired length.

Yarn for the tufting machines comes from hundreds of spools mounted on a creel behind the ma-

(Continued on page 54)

Dynamic sculpture by José de Rivera—symbol of American Enka Corporation, one of America's great producers of synthetic fibers

Dependable quality is a prime essential to the manufacturer regardless of what his end product may be. He must at all times be able to count on raw materials that meet his specifications. Enka customers enjoy complete confidence in the uniformly excellent quality of Enka rayon yarns, and it is this devotion to quality that has fostered Enka's fine reputation among a growing number of distinguished firms.
Multi-wall paper bag makers, for example, not only find the quality they demand in Enka's High Tenacity Rayon Sewing Thread but also gain the extra advantage of ***superior strength at lower cost.*** Think of what these cost and quality advantages can mean in your business and call American Enka today.

American Enka Corporation • *206 Madison Avenue, New York 16, N. Y.*

REPORT FROM EUROPE

BY SPECIAL CORRESPONDENT

New plan for multi-nation integration studied by European textile producers

PARIS: Two schemes aimed at European economic integration are being seriously studied in European textiles circles. One, known as the Messina plan, includes France, Germany, Italy and the three Benelux countries, Belgium, The Netherlands and Luxemburg (the same group making up the European Coal and Steel Community). The second, mentioned on this page in September, includes the 16 member nations of the Organization for European Economic Co-operation.

The Messina plan, in brief, would set up a customs union for six sponsoring nations and others that cared to go along. Goal of this project is to take advantage of broad market that would be available if a number of countries opened their frontiers to each others goods.

It is generally expected that whatever form is ultimately agreed upon, the nations would continue to have right to impose tariffs unilaterally on imports from non-member countries.

Inducement to United Kingdom—This unilateral freedom is being suggested as only means of inducing U. K. to throw its support behind Continental nations. Britain would go on being able to grant Commonwealth tariff preference.

While British textile experts have been studying pros and cons of the question—while also looking into OEEC integration plan, Dr. R. Robson, Cotton Board economist, has come up with a report that is perhaps being discussed more in European trade circles than any other.

What Robson Report Says—Robson divides his study into two sections: the impact of the common market on the market itself, and on foreign trade in textiles. Considering only Robson's answer from the man-made textile viewpoint, it would seem that effect of the common market, on domestic development of rayon and man-made fibers, would be relatively unimportant. Explanation: common markets tend to hasten specialization, standardization and large production units—but the man-made textile industry is already trending in this direction. And, the labor factor, which could bring a change in locale (as it did in U. S. cotton industry) is less important for rayons and synthetics than for other textile industries.

In staple fiber production, Robson said, labor costs do not exceed two pence (2.3¢) a pound. Thus any reason for change in locale would be due more to transportation costs of pulp, machinery and such chemicals as caustic soda. "The industry is more likely to be attracted to these sources of supply than to low wage areas," according to Dr. Robson.

Foreign Trade Angle—The study states that "the most likely outcome is that the Messina countries will form a customs union and the other OEEC countries a free trade area to include this group." Thus, Messina countries could use a common foreign tariff to keep out Asiatic imports, while OEEC nations would act unilaterally on such matters as Japanese imports and Commonwealth preference. The UK would be included in the latter category.

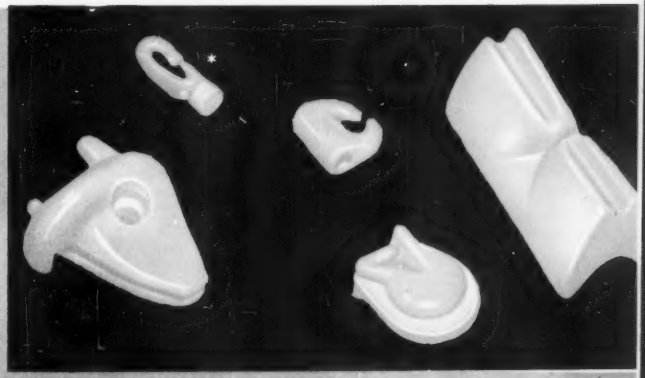
Latest Technical Developments—The Superfostat Fabriks Aktiebolag, Stockholm chemical producer has developed Sweden's first fully man-made fiber. It is called Tacryl and resembles Orlon. Test production of 300 tons annually will take place at the company's Ljungverk pilot plant. It will be made at first in gray and white, and in two grades. It was developed from a carbide ammonia base. Tacryl is claimed to be warmer than wool and will be used as mixture with wool and rayon.

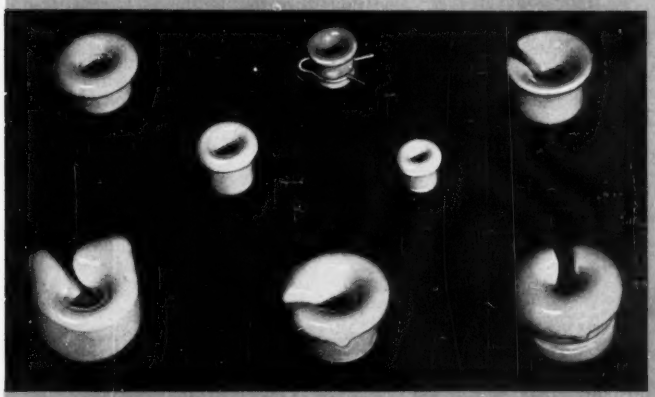
Hibernia A.G., West German mining and plastics firm, is testing propylen, a hydrocarbon from coal, for possible use as a textile fiber. A plastic called polypropylen has been made by low pressure polymerization and is said to be softer and more flexible than polyethylene. A 200-pound per day pilot plant is being completed.

Engineering Section

MITCHELL-BISSELL THREAD GUIDES

For Every Textile Service . . . For More Than 70 Years



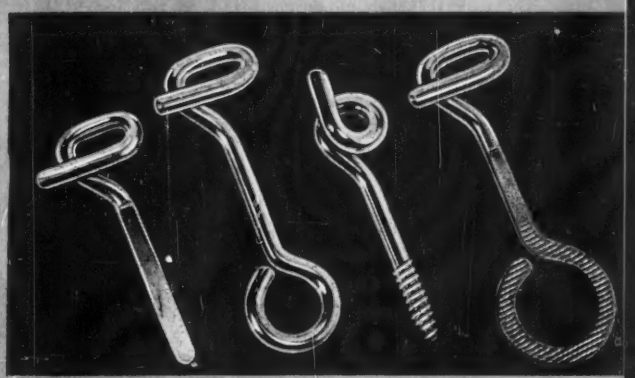


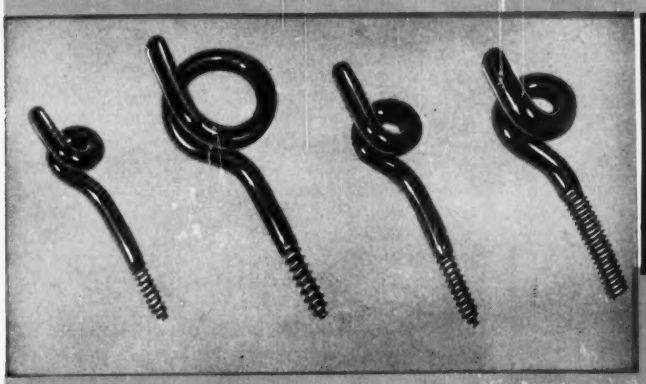
Above—"BLUE SATIN FINISH" PORCELAIN GUIDES.
An exclusive development of Mitchell-Bissell—guides with this finish are more resistant to thread wear than any glazed porcelain guides ever offered the industry. "Blue Satin Finish" Guides, instead of being shiny and glass-like, have a surface of thousands of small rounded grains closely packed together. Reduced wear and longer guide life result because, by breaking the continuity of contact between yarn and guide, friction is reduced. * U. S. Pat. No. 2,152,136.

Left—WHITE GLAZED PORCELAIN GUIDES.
The Mitchell-Bissell Company originated the use of porcelain as a thread guide for the textile industry. The white Glazed Porcelain Guides shown here are representative of thousands of patterns that have been sold to all branches of the textile industry since this company was founded over seventy years ago. Improved in quality from time to time they are still "standard."

Right—CHROMIUM PLATED STEEL GUIDES.
The plating on Mitchell-Bissell Chromium Plated Steel Guides is harder and denser than on any other wire guides. Our methods of fabricating and polishing develop a surface smoothness, with a mirror finish far beyond usual commercial standards. Because of their superior resistance to thread wear these guides are used extensively on machinery for processing rayon and nylon yarns and also for many other severe applications. Also available in Satin Finish.

Below—ENAMELED IRON GUIDES.
Where wire guides are desired, and service conditions do not require chromium-plated guides, our Enameled Iron Guides give exceptionally good service, with a low initial cost. Made with the care and craftsmanship that are standard practice on all Mitchell-Bissell products, these are recommended as centering and ballooning guides, and for cotton, woolen and other soft yarns.

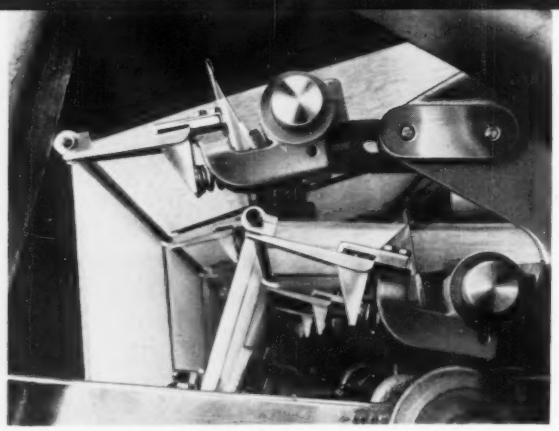




MITCHELL-BISSELL CO.

TRENTON, N. J.

Southern Representative: R. E. L. Holt, Jr., & Associates
Greensboro, N. C.



TENSION ARRANGEMENT—Each tension bar is supported by nine brackets identical to one in foreground. They are individually adjustable from front of machine with a screwdriver.

Knitting

New high-speed tricot knitter

Operates at 800 courses per minute

By Jerome Campbell
EDITOR, MODERN TEXTILES MAGAZINE

A NEW tricot machine that knits at 800 courses per minute and faster was presented to the world last month by Textile Machine Works in a special demonstration at the company's Reading, Pa., shops. Said to have been five years in development, the new machine, according to Hans G. Fiedler, manager of Textile Machine Works' Wire Products Division, produces fine quality goods and runs safely at a speed roughly twice that of older types of tricot knitters. The new machine, which is built on a massive frame, weighs 15,500 pounds and sells for $16,500.

At the demonstration, textile press representatives studied the machine in operation knitting a plain tricot fabric of 40 denier "unthrown" nylon yarn. It was evident that the machine operated with great smoothness producing an excellent grade of cloth. Tests with a hand gauge showed that the drive shaft was turning at 800 revolutions per minute resulting in a knitting speed of 800 courses per minute. The visibly rapid movement of the cloth take-up roll, noticeably faster than on other tricot machines, was also dramatic evidence of the new machine's high speed.

Mr. Fiedler said that the machine has been thoroughly tested under mill operating conditions since last July. One machine has been installed in a Burlington plant in Greensboro, N. C., while a second one has been operating at Blue Ridge Textile Co., Bangor, Pa.

Even when running at 800 courses per minute, the new machine maintains correct tensions and does not wear so as to cause poor quality goods, Mr. Fiedler said. He declared that the speed of 800 courses per minute has proven itself to be a normal operating speed under conditions prevailing in most mills when running conventional fabric constructions. The machine, however, has been operating at up to 1000 courses per minute. Unusual constructions, such as those in which long floats are used, can be knitted on the new machine at speeds of about 400 courses per minute, Fiedler said.

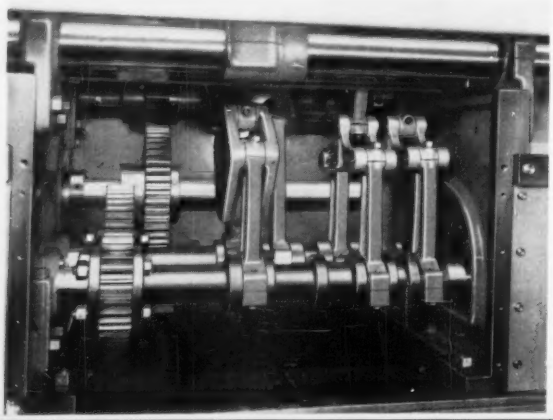
A highly efficient let-off motion, which Fiedler described as the "soul" of the new machine, operates without tension and regulates the feed of yarn required to maintain continually specified runner-length. The new machine, which has been tradenamed "The Reading", has a balanced needle motion actuated by an eccentric mechanism from two crankshafts. Oversize precision-cut gears, Fiedler said, insure perfect timing of the crankshaft. Replaceable shell-type bearings are used, as well as automatic pressure lubrication.

Using a linkage similar to the needle motion, a balanced pressure motion reduces vibration and permits smooth high-speed operation. Correct press settings are made by a simple adjustment controlling relative displacement between the pressure rocker shaft and press arm.

A new approach to the engineering of the guide lapping motion provides one with 30% less swing than found on older types of tricot machines. On the new machine control of fabric patterns is achieved by use of 18-inch diameter pattern wheels driven by precision change gears. An adjustable mounting holds the follower rollers, allowing full width bearing. Guide bars are returned with a minimum of surging by action of short compression springs. Nine ratios are available ranging from 1 to 6 and 1 to 96.

Specifications of the new "Reading" tricot machine as furnished by the manufacturer, are as follows:

Knitting Width	168"
Gauge	28 and Finer
Recommended Mill Speed	800 C.P.M.
Motor	Dynamic Brake-Type Motor with Reeves Variable Speed Pulley
Guide Bars	2 Bar-Convertible to 3-Bar Operation
Warp Beam Barrels	4½" Dia.
Over-all Dimensions:	
Length	19' 8"
Width	5' 5" (with Warp)
Height	5' 8" (with Warp)
Weight	approx. 15,500 lbs.
Cloth Roller Diameter	14" max.



DRIVE SHAFT—This photograph shows arrangement of eccentrics and drive shaft on new "Reading" tricot machine. At left are gears which insure accurate timing. In center are balancing units.

There once were 2 brothers named Twitch
One was poor and the other was rich
When the poor one was dressed
In his Coloray best
*You couldn't tell which one was which!**

*SERIOUSLY—Coloray colors look very rich indeed. A fabric woven entirely of Coloray rayon has inviting depths of subtle, glowing color...completely different from the ordinary tones produced by ordinary dyes. Because color is not a coating, in Coloray. Color is the heart and soul of Coloray! This rayon fiber is *infiltrated by color through and through* via Courtaulds' solution-dyeing process. That's why you can get the most expensive hand-woven effects in Coloray rayon...as well as a tremendous range of luxury effects...the look of imported tweeds and heathers and flannels and knits and so on! All this and a wealth of colorfastness too is yours in soft goods made with Courtaulds' Coloray fiber. The fiber that makes merchandise look better, behave better, *sell* better!

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Rayon fiber with Captive Color..."*can't escape!*"

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New machines shown at Leicester

BY SPECIAL CORRESPONDENT

HELD for the first time since 1950, the International Knitting Machinery Exhibition in Leicester, England, last October revealed progress in many directions. European machine builders have followed the trend towards circular hose production and some, notably in England, have secured major export orders to the U. S. A.

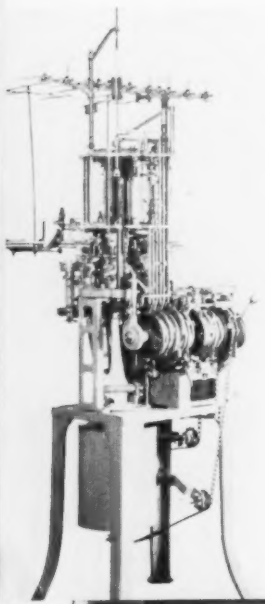
Synthetics are becoming accepted for outerwear production and American exhibitors at the Leicester exhibition reported increasing interest among European mill men in machines designed specially for synthetic yarns. In yarn preparation as well as in dyeing and finishing equipment, some interesting European developments were revealed at the exhibition.

Production of large packages at constant high speeds, improved tensioning and stopping devices, better supply and creel arrangements are features of the latest yarn preparation machines shown at Leicester. A high speed cone winder, specially designed for the hosiery industry Arundel Coulthard, winds 6 in. and 8 in. traverse cones with up to 10 in. diameter base.

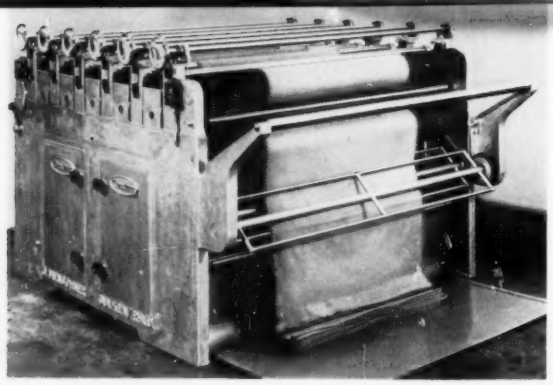
Ateliers de Construction Gilbos exhibited a cone winder winding direct from hank to cross-wound cone at a speed from 110 to 525 yards per minute.

Hobourn Aero Components have developed a range of winders specially for synthetic yarns, including a multihead machine equipped with mock cake attachments and two six-head cone winders for nylon with yarn oiling equipment.

Thomas Holt exhibited a spindle driven cone winder suitable for all synthetic yarns down to finest deniers fitted with a new arrangement to pre-determine and maintain constant pressure between roller bail and package throughout the build of cone or cheese.



Scott & Williams Komet Machine



German sueding machine made by Johannes Menschner

The Foster cone winder built under license in Germany by Franz Muller was also on show, and other new winders were shown by Schweiter, Stubbs and Universal Winding Co. whose English subsidiary is now building the American-designed machine.

Another display that attracted attention was a new machine for rewinding man-made fiber yarns on double-flanged uptwister bobbins developed by Ratti. The machine winds from pirns, tubes, bobbins or from rayon cakes, operating with minimum yarn strain. When winding from tubes, the machine winds at speeds of 1,100 yards per minute. Also the center of much interest was a crimp twist machine from Ernest Scragg which produces in one operation bulk yarns under electronic control with minimum speed of 30,000 r.p.m.

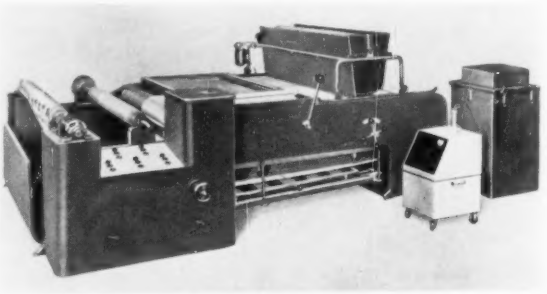
The world's leading manufacturers of full-fashioned straight bar knitting machines were all represented. Owing to space limitations, however, they exhibited samples and displays, with one or two four-section models in some booths. Exhibitors included Lieberknecht, Textile Machine Works, Mellor Bromley.

Circular hose and half-hose machines were very well represented by exhibitors from the U.S.A., England and Italy. Prominent American firms included Scott & Williams, Carolina Knitting Machine Co., Fidelity Machine Co., Inc. which was showing the new 400-needle double feed machine with electronic control and air-operated take-up attachment.

The English Bentley Engineering Co. exhibited three circular-knitting machines. These knitters demonstrated knitting of plain and micro-mesh seam-free hose with ballet toe, also mock-seam hose with mock fashion marks, fancy high-spliced heels and cradle soles.

Santoni & Co. exhibited two single-feed machines producing seam-free hose with inturned welt and

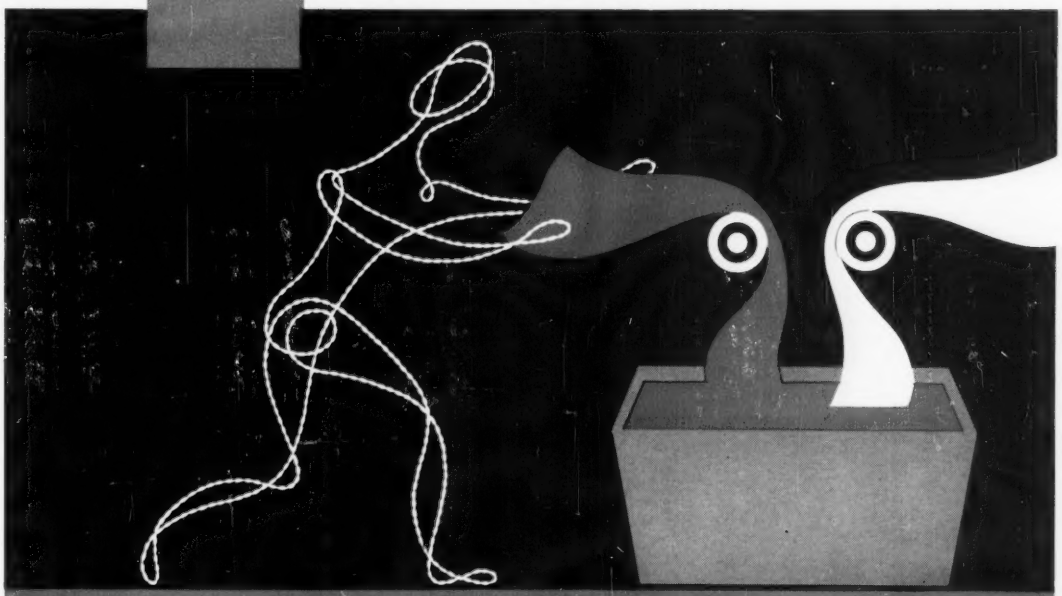
(Continued on page 50)



Swiss flock printing machine

be wise about dyes!

Q. How do you fill dyeing requirements without filling bands?



A. Count on Continuous Process Rayon to be 100% uniform... dye 100% uniform!

Inch by inch, mile after mile, Continuous Process Rayon is so totally uniform that every inch dyes exactly the same as every other inch!

Because of its unique process, IRC Continuous Process yarn is so free of knots and breaks that weavers of critical fabrics insist on it.

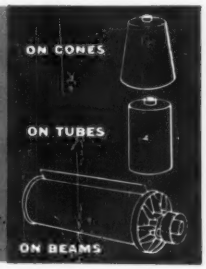
Manufacturers of backing for automobile slip covers, for example —a highly critical fabric—find that IRC yarn cuts down drastically on seconds... fabric dyes evenly, streak-free, perfect. One manufacturer of iridescent taffeta reports that, since specifying IRC yarns, he has sold millions of yards of fabric virtually without returns.

Since IRC is your first choice for critical fabrics—at no greater cost than other yarns—isn't it sound business to specify IRC for *all* your rayon needs?

I·R·C

INDUSTRIAL RAYON CORPORATION
CLEVELAND, OHIO

Producers of Continuous Process Rayon Yarns, Tyron® Cord for Tires and The New Nylon Staple Fiber.
Sales Offices: 500 Fifth Avenue, New York 36, N. Y.
[illegible] Chamberlain Blvd., Charlotte, N. C.



SEEN AT GREENVILLE

Part 2

More brief reports on new equipment shown at Southern Textile Exposition last October

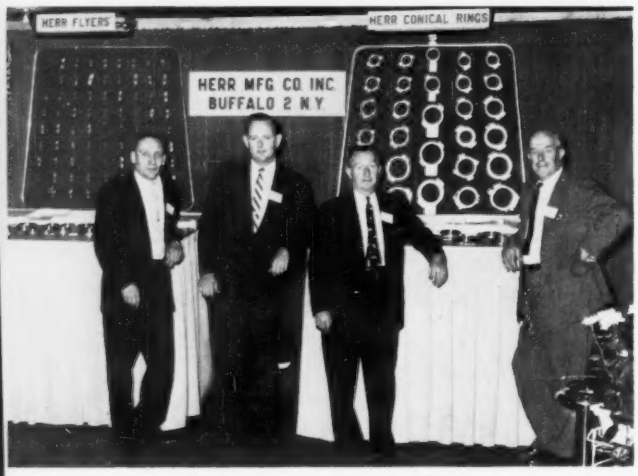
STAFF PREPARED

Improved Ring for Better Yarn

HERR MANUFACTURING CO., INC., Buffalo, N. Y. displayed samples of all types of its conical rings and flyers. According to H. B. Atwood, president, the company's conical rings, because of their special design, equalize the yarn tension forces (upward and downward) and the traveler centrifugal and gravitational forces (outward and downward).

The Herr Conical Ring balances these opposing forces and the traveler rides on the ring with minimum frictional contact. Reservoirs feed oil to the capillary openings. This oil is distributed by the traveler to form a microscopic film on which it rides, permitting maximum spindle speed with minimum ring and traveler wear.

Results of these features, according to Mr. Atwood, are: yarn breakage is prevented; yarn is smoother; heavier, more uniform doffs are obtainable.



Herr displays its wares at Greenville

Selvage Uncoiler Saves Labor

Shown for the first time at Greenville by MARSHALL & WILLIAMS CORP. was a selvage uncoiler built especially for tricot finishing frames. According to John C. Nash, the company's vice president in charge of engineering, the new uncoiler eliminates the services of two workers used to uncurl selvages as knit goods enter the tenter frame. Also shown for the first time by Marshall & Williams was a tenter clip ingeniously fabricated in two parts. The top section can be removed for repair and replacement, thus permitting substantial savings in tenter clip maintenance.

High Speed Spools

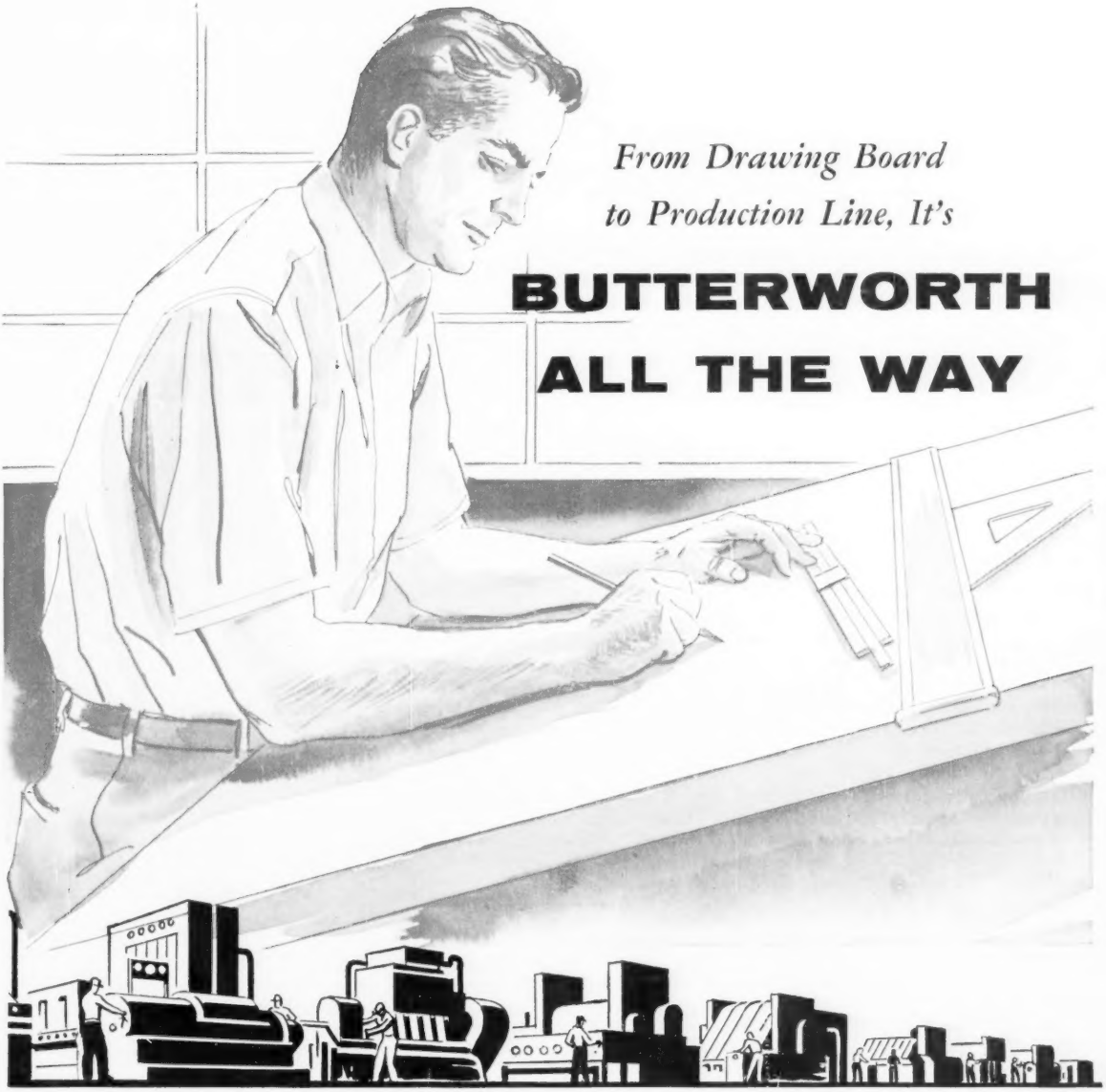
Among the products on display at the booth of NATIONAL VULCANIZED FIBRE CO., was its line of Lestershire bobbins and precision spools for nylon, Orlon and Dacron. The advantages of Lestershire precision spools are that they are carefully manufactured to be extremely well balanced. This means that they will run smoothly at speeds in excess of 15,000 rpm. Since they are made with an aluminum barrel covered with phenolite, these precision spools are said to be extremely resistant to crushing. Another advantage of these spools, according to Lestershire, is that they are constructed so as to have screws that are locked into the barrel, giving added holding power to the heads.

Improved Pneumastop

Among the items displayed by the PNEUMAFIL CORP. was its new Pneumastop whose design incorporates the latest technical features in the electronic industry. These include printed circuit, enclosed relays, midget industrial tubes which are all mounted on a plug-in base. The scanner unit now has

A portion of the Lestershire display.

Pneumafil presents its sales message.



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to Production Line, It's

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ALL THE WAY

At Butterworth, you get engineering skill *plus* manufacturing facilities — all in one plant, with a single source of responsibility. Butterworth Development Engineering goes to work for you — in our plant with our men and our equipment — to transform your ideas into realities . . . gives you the process, the product or the machine you need — not just the blueprints.

At Butterworth, your idea remains *your* idea, but our engineers become your engineers. Each step in the development of that idea is carefully guarded. And Butterworth men and machines manufacture the finished product to your complete satisfaction.

Got a gap that needs bridging, between an idea and a reality? Then write or call Butterworth today.

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BETHAYRES, PENNSYLVANIA

selenium photo cells which automatically stay in balance. All of these electronic advantages, according to Pneumafil, are combined with the latest type air handling equipment to give a more efficient system with virtually no maintenance required.

Cocker Improvements

A new piece of equipment displayed by COCKER MACHINE & FOUNDRY CO., Gastonia, N. C. was its dye beam warper equipped with a pneumatically controlled pressure roll to give exact control of pressure on yarn. Also displayed by Cocker was a new size box for cotton slashers equipped with a quetsch roller that moves forward and backward automatically with the speed of the slasher.

Versatile Warper

In warping equipment, one of the noteworthy new developments was the new Kidde-Sipp Model 158A 54¼ inch section beamer displayed by KIDDE MANUFACTURING CO., INC., Bloomfield, N. J. A spindle driven machine, the new warper is designed to accommodate section beams with a maximum flange diameter of 36 inches. Doffing of the beam is accomplished by hydraulic action operated by compressed air. The new warper can handle yarns as fine as 30 denier and as heavy as tire yarns.

Automatic Fabric Inspector

Among the machines demonstrated by LINDLY & CO., INC., was its mechanical electronic device for fabric inspection. The unit provides for the detection of raised defects such as slubs and gouts. Its advantages are virtually continuous operation at speeds which often exceed maximum speed of current intermittent operation of visual inspection devices. The Lindly device permits reduction to a minimum of human attention and judgment, and provides for greatly improved cloth quality along with economies in man power.

Better Coiler Roller

One of the items displayed by ENGINEERED PLASTICS, INC., Gibsonville, N. C., was a new plastic roller for attachment to card coiler heads. Advantages claimed for the roller are these: it makes impossible dragging the sliver over the metal coiler head, thus eliminating broken or snagged fibers; the unit provides for improved quality through more even tension and a snag-free contact surface with the fibers. The roller is said to work well with cotton and synthetics. Equipped with an aluminum bracket, the roller is easily installed on the coiler head by drilling one hole.

New Twister

A new two pound doubler twister was demonstrated by U. S. TEXTILE MACHINE CO., Scranton, Pa. It is intended for plants processing zero twist yarns at high speeds. Operating at 8000 rpm, the machine inserts one turn and carries out doubling and twisting operations from cake to package. In operation, the machine's gears are engaged at all times. This eliminates the difficulty of matching gears when doing one-turn insert work. Because all gearing in the back and head are mounted in units, errors in gear set-ups are eliminated.

Automatic Filling Winder

At the exhibit of FOSTER MACHINE CO., Westfield, Mass., attention was centered on the new Foster-Muschamp Model 66 automatic filling winder. This machine was described in detail in this magazine's May, 1956 issue on page 54. Foster also reported great interest in the new Draper filling box which replaces battery hands and makes possible complete rewinding of all types of yarns due to savings effected by reduction in battery hands. These savings are estimated by Foster spokesmen to be about three cents a pound on yarn for 80x80 print cloth.

Leicester *(Continued from page 46)*

ballet toe. This machine has a robust dial drive which is not disconnected when the dial is lifted. A 400x3¾ Maxim hose machine from Stibbe splices by needle selection, drawing extra long loops in the spliced areas and cutting the splicing yarn at every revolution of the needle cylinder.

In the finishing section, many machines on show were specially developed for synthetics. The Bellfour Co. exhibited a high temperature dyeing machine for woven and knit goods made from synthetic yarns. This machine also dyes and scours woolen woven and knit goods, yarns, bobbins, hanks, flock or combed top. This machine is suitable for all usual dyeing temperatures and for high temperature dyeing at 289 degrees F. Scouring, setting and dyeing are in one operation.

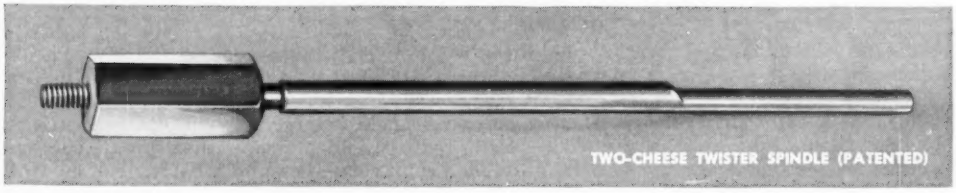
Longclose Engineering Co. had a high-temperature pressure dyeing machine with fully automatic control panel. Of interest were a number of new preboarding machines from Girland Engineering Co., Southern Mill Equipment Corp., Heliot. Finally, among fabric finishing machines was the Swiss Hofer flock printing machine which applies electrically charged nylon or viscose flock under infra-red heat. Menschner has developed a sueding machine for tricot fabrics, specially suitable for Rhovyl yarns.

Mothproofing *(Continued from page 36)*

at no cost to the mill. If analysis of that fabric shows a deficiency from the amount prescribed, the mill is notified and corrective measures undertaken, thus giving reassurance that fullest mothproofing efficiency is obtained. Notwithstanding that chemical analysis has proven indicative of effective processing, a biological test is conducted simultaneously by Geigy's entomological laboratory as a double check.

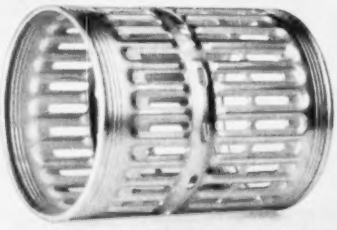
Use of Mitin as a mothproofing agent for carpets is expected to grow. A recent survey by Geigy of carpet and rug buyers in 116 retail stores revealed an increasing consumer demand for mothproofing of floor coverings. According to the survey, over 72% of the buyers replied that customers asked to have their rugs or carpets mothproofed before home delivery. This, they admitted, caused the store considerable trouble, additional responsibility and 64% answered that the store made no profit for the extra effort. Of the stores surveyed 66 2/3% replied that customers would gladly pay from $1.50 to $6.00 extra for carpeting durably mothproofed by the mill. Recommendations predominantly were that the mothproofing costs be included in the price of the carpeting. All but one of 116 buyers consulted stated that they would promote and advertise this feature in their rugs.

BARBER-COLMAN ACCESSORIES

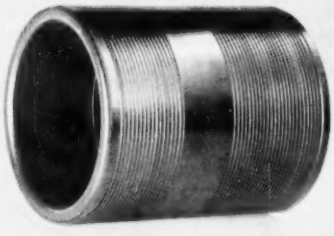


TWO-CHEESE TWISTER SPINDLE (PATENTED)

WOOD CHEESE CORE



STAINLESS STEEL DYE SLEEVE



BAKELITE CHEESE CORE SLEEVE

USE THESE BARBER-COLMAN PRODUCTS FOR BEST RESULTS

The accessories shown here are carefully designed and developed by Barber-Colman Company for use on Barber-Colman machines. • The Twister Spindle, used with wood Cheese Cores, is a new idea that makes for better twisting. The offset on the end of the spindle retains the outer cheese and lets it run free of the inner one. Thus, by mounting two cheeses per spindle, the height of the twister creel is reduced. • The stainless steel Dye Sleeves fit the same holders on the Automatic Spooler as the regular plastic Cheese Sleeves and were designed and developed exclusively for this Barber-Colman machine. • Since all of these parts are made of best materials to very close limits, they not only are accurate, uniform, and durable, but also insure *top performance* of your machines.

BARBER-COLMAN SERVICE WILL KEEP YOUR MACHINES AT THE PEAK OF PRODUCTION

For many years Barber-Colman Company has maintained a high-grade Service Department, and made its facilities available to all owners of Barber-Colman equipment at reasonable cost. The men who staff this Department are all experienced hands, trained to handle the special problems of Barber-Colman equipment. They are backed by the knowledge and experience of the entire Barber-Colman organization. You can employ this Service in any manner you wish — on a regular contract basis, for specific problems, or in any emergency. *See your Barber-Colman representative for details.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

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Update Your Spinning Equipment!

An expert explains how spinning room modernization yields large and immediate gains

By Robert E. Pomeranz
ROBERTS CO.

NO MACHINERY modernization holds the attention of large and small mill organizations as spinning modernization does today. There is a sound reason for that interest in the well-known ratio that costs in the spinning room average three times as much as all costs which precede it.

It is certainly true that the card room operations must be up to date, and that every spinning system needs good roving. Nevertheless, sufficient proof exists that nothing should delay drafting system modernization. In almost every case a modernized drafting system will improve results from any quality of roving stock. Drafting modernization will also highlight areas of the card room where improvements might be made.

During the course of supplying modernization material for more than 2¼ million spindles and in observing modernizations supplied by other manufacturers, we have determined a preferred order of importance of the various elements in a spinning modernization program. It is generally best to do a thorough job of modernization of any group of frames. Where possible it may be best to modernize a small group of frames completely, rather than do a partial job on all the frames. But, practical mill managements frequently ask us this question "Where can we spend the least amount of money and get the most results for it?"

First of all, attention should be given to the drafting system. This is the basic channel which affects yarn quality. It is the foundation on which mill management must build opportunities to reach higher front roll speeds, larger roving and spinning packages, reduced ends down, higher spindle speeds and higher spinner job loads. Dollars spent in drafting system modernization usually will provide the quickest return.

Secondly, mills should consider ball bearing spindles, cylinders and tape tension pulleys, and all related items. These will provide an increase in the size of the package as well as increased cylinder and spindle speeds. Third, a new open-type creel should be considered especially where roving packages are to be increased or where full bobbins cannot now be used, and for the added benefit of substantially reducing cleaning. Fourth would be consideration of suction cleaning in order to permit the maximum drafts available from the modernization drafting system and to achieve most satisfactory spinner job loads.

Hand in hand with these four major steps should come the scrutiny which every wide-awake mill, even one not modernizing, must give to its rings, to building the bobbin, and to control of oiling procedures and other similar standard maintenance items. The cost of improving the bobbin build through an overhaul of the lay driving gears, cam and cam

PERFORMANCE RESULTS ROBERTS HIGH DRAFT SYSTEMS

Sheeting and Print Cloth Warp Yarns

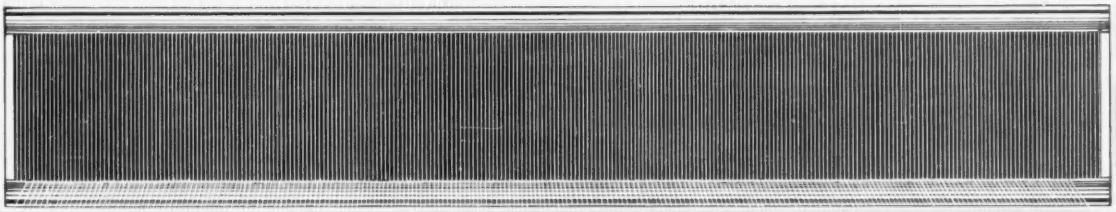
Results obtained week of April 2, 1956

	Print Cloth		Sheeting		Carded Sales Yarn	
Mill	A	B	C	D	E	F
Yarn Number	31½	31½	21½	21½	21½	20
Hank Roving	.70	.60	.72	.55	.55	.66
Package Size	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6	12 x 6
Draft	45	52	30	39½	39½	30½
T. M. Yarn	4.07	4.15	4.22	4.23	4.21	3.50
RPM Front Roll	144	148	165	148	163	168
Break Factor	2340	2210	2285	2200	2253	2300
Non-Uniformity	95	93	65	64	64	62
Ends Down	26	23	29	22	31	20
Spindles per Operator	3480	3300	1656*	3000	3036	2912
Suction Cleaning	yes	yes	no	yes	yes	no
Frame Gauge	3¼	3½	3½	3½	3½	3
Diameter Ring	2	1⅞	2⅛	2¼	2	2
Tube Length	9	9½	10	9½	10	9
Drafting System	Roberts	Roberts on Roth	Roberts on Roth	Roberts on Cas.	Roberts on Cas.	Roberts on H&B
How Long Installed	1½ yrs.	3 yrs.	1¾ yrs.	3 yrs.	5 yrs.	1 yr.

* On this installation, spinner does all cleaning.

Specify Stehedco Quality Reeds

The proof of a good reed is in the woven cloth.



Your reeds play an important part in the economical production of first quality goods. Be sure they are good reeds and you can be more sure of better quality production.

Stehedco Quality Reeds are constructed of the finest materials by master craftsmen. Stehedco plants are located strategically to assure you quick delivery as well as fine quality reeds.

Stehedco engineering brings you four new improvements in reed construction . . . four new reeds that have proved revolutionary in producing better quality with greater economy.

Write today for the new Stehedco Reed Catalog featuring the new Angle Dent Reeds, Loose Spring Reeds, Rigid Metal Reeds and Rigid Pitch Reeds.

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PHILADELPHIA 32, PA.
SOUTHERN SHUTTLE DIV.
GREENVILLE, S.C.
Southern

Other Plants and Offices: Granby, Quebec, Canada—Lawrence, Mass.—Greensboro, N.C.—Atlanta, Ga.—Textile Supply Co., Dallas, Texas—Albert R. Breen, Chicago, Ill.

10-R-56

shaft, builder motion, Pitman roll, chain pulleys and traverse connecting rod pins is so small per spindle that no alert mill can overlook it. Also the use of a one-shot oiling system, hardened studs and hardened gears in the head and other related items are a "must" if the basic spinning frame is worth anything at all.

The fruits of spinning modernization program are many. But readers of this article can make up their own list of what they want from such a program: higher front roll speeds, more sides per spinner, reduced ends down, higher break factors, better non-uniformity, larger roving packages, or they can wrap all of them up in five words "lower cost and better quality."

It is our practice to check monthly various installations of our equipment in the mills to determine first of all what the current trend is on performance, and secondly to see how our equipment maintains consistency of this performance. In presenting the figures in the Performance Table, we should point out that mills equipped with spinning modernizations supplied by other manufacturers should be able to achieve equivalent results.

Three yarn types are represented in this particular survey. Print cloth warp yarns, sheeting warp yarns, and 20's carded sales yarn. Readers who run these numbers can easily write their figures alongside these results for comparison purposes, and mills running other constructions might project these figures to their own jobs.

In presenting any results such as these it must be pointed out that many factors affect the performance from one mill to the next. Of course, roving preparation is most significant. But many other factors such as condition of the rings and front bottom rolls, type of humidification system and overhead cleaners, long draft cleaning cycle, and other similar items would provide a big difference from one mill to the next. The importance would come in how a specific operation was improved.

Recently my company supplied our completely modernized spinning frames for the entire operation of a mill whose output is 83,000 pounds per week of a combination of 80 square and 64 square print cloths. The results achieved are typical of what is being done in many mills today.

It was possible to reduce the working force by 48 people.

A reduction in roving inventory was achieved due to elimination of one roving process.

An increase of about 10% of total yarn output is being obtained, although wider gauge frames are being used.

Output of baled cloths will run approximately 10 pounds per man hour in opening and picking through the cloth room.

Yarn output will average 3 pounds per spindle per 120 hour week.

The fruits of spinning modernization are sweet and well worth the effort to reach such goals. *(Adapted from a paper read at a recent meeting of the Southern Textile Association.)*

Tufted Carpets *(Continued from page 40)*

chine. A strand of yarn is supplied to each needle through small tubes which pass over the head of the operator and converge down into the machine. Modern tufting machines such as the machines used at Bridgeport (manufactured by Super Tufter Machinery Co., Fort Oglethorpe, Ga.) can make carpets up to 18 feet wide.

How Tufted Carpets Are Dyed

At Lees' Bridgeport plant tufted carpets are piece-dyed in enclosed stainless steel becks specially manufactured for this purpose by Rodney Hunt Machine Co. These machines were designed to handle open width goods so that the dyestuffs are evenly distributed across the face of the fabric.

To provide the necessary evenness of temperature front-to-back the Rodney Hunt machine is built with a perforated false bottom. Steam coils were inserted between the true bottom and the false bottom. These coils were pointed in the direction of the perforations thereby setting up a figure eight circulation in the machine and keeping the temperature even, front-to-back.

To insure even dispersal of the dyestuffs across the full width of the machine, the dyestuff pipes were inserted between the true bottom and the false bottom. To maintain the high temperature necessary in the dyeing procedure, the machine was totally enclosed with sliding doors front and back. Because of their great weight, the doors are moved by a pneumatic lifting device. Loads on the machine vary from 90 yards to 160 yards depending upon the dyeing technique used. A normal load is 120 yards of 15 foot goods. ■

New High-Speed "Shuttleless" Loom

A weaving machine or "shuttleless loom" has been developed in Italy with a production speed up to 900 picks a minute, according to its manufacturer, Industrie Elettromeccaniche Metallurgiche of Orsenigo. Called the Gentilini-Ripamonti loom, the machine is said to dispense with shuttle, heddles and reeds.

The new loom, it is reported, inserts the filling by means of special "sheaths" which cross the slightly raised warp threads, allowing no contact between the warp and filling prior to beat-up. Filling is taken from a series of 2 lb. spools, which can allow up to 20 individual colors, and which may be inserted as single picks. Since leno selvages are produced, it must be assumed that the single picks of filling are cut and are not laid continuously in the fabric.

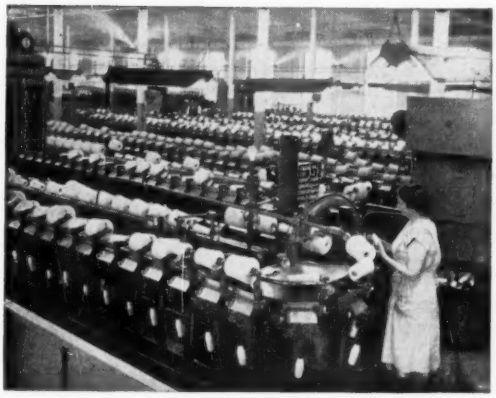
The filling supply is sufficient for up to 48 hours running. The loom is said to be quieter in operation than traditional looms, giving the impression of cloth coming from an inspection machine, so smooth and fast (over ½ yard per minute) is the production. Other features include push-button control and immediate stoppage on occurrence of a thread break.

With hemp and jute fabrics having 11 picks per inch, speeds from 500 to 750 picks per minute are reported; for cotton with from 40 to 60 picks per inch, 900 picks per minute; and for wool with from 40 to 50 picks per inch, 500 picks per minute.

The new loom was invented by Augusto Gentilini, with advice and financial assistance from Luigi Ripamonti. It was introduced at a recent Italian exhibition at Busto Arsizio by Dr. Tito Broggi, Professor of Textile Technology at the Polytechnic School of Milan. Negotiations for its manufacture outside Italy are reported to be taking place in Britain, the U.S.A. and the Soviet Union. *(Adapted from a report in the September, 1956, International Review of Cotton and Allied Textile Industries.)*

Automatic Winders for Rewound Filling

to take advantage of large package spinning, more yarn on filling bobbins, more uniform bunches, better weaving bobbins, and inspected yarn, all of which go to make a better fabric.

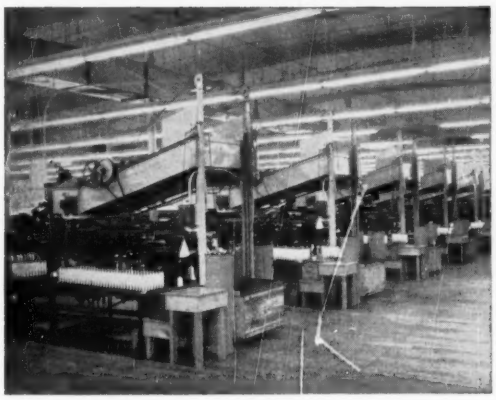


Abbott Traveling Spindle Package Winders

Automatic Cone or Tube Winders for warping, dyeing, twisting, quilling, sales.

Can be equipped with any one of a variety of slub catchers and inspection devices.

Production up to 1000 bobbins per hour per operator.



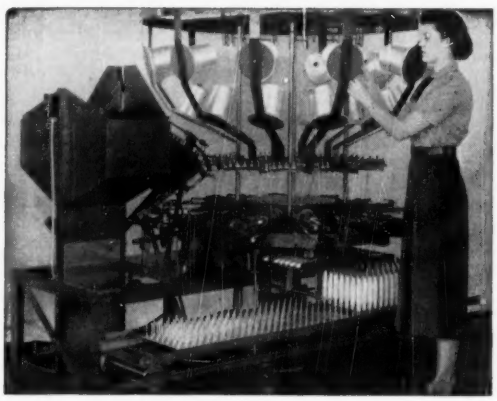
Abbott Traveling Spindle Automatic Quillers

For winding coarse cotton, worsted, woolen yarns, etc., equipped to doff automatically into baskets, or stack automatically into boxes.

Abbott Model 11 High Speed Automatic Quillers Over 10,000 RPM

For winding fine cotton, spun synthetics, filament rayon and nylon, etc. with automatic pinboard attachment or wide belt inspection conveyor, or bobbin stacker.

Production up to 2500 bobbins per hour per operator.



Abbott Fully Automatic Radial Quiller

For smaller lots and widely diversified mills.

For winding cotton, spun rayon, filament rayon, worsted, wool, etc.

Can be arranged to deliver bobbins to Pinboard Attachment, or into baskets, or into wide belt conveyor.

One operator can run several machines producing up to 2000 bobbins per hour per operator.

Can be equipped with measured yardage device for two-shuttle looms.

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NEW FABRICS

NEW YARNS

Chromspun Carpet Fiber

Callaway Mills has made available a new heavy-denier lofted Chromspun carpet fiber which will be exhibited at the Merchandise Mart in Chicago during Market Week in January 1957. The Chromspun carpet is available in 12′ and 15′ widths at approximately $6.95 per square yard and in standard rug sizes at approximately $85 for 9′ x 12′ rug.

No-Iron Cotton Shirt

What is termed the first men's "everyday" cotton shirt that requires no ironing will be available for sale nationally about the first of the year, according to Roy Bernard Co., which is handling sales and licensing in this country.

The shirt fabric, called Toplin, is a specially constructed and processed top-grade poplin. It was developed by Rael-Brook of London and the shirt introduced on the Continent last year. The new shirt is backed by a guarantee that it will look, after washing, superior to any normal poplin shirt that has been freshly ironed.

New Aircraft Trim Fabric

Sawyer-Tower, Inc., Watertown, Mass. developed a new and improved versatile aircraft trim material made of a vinyl-coated Dynel fabric. The trim, which is fire-resistant and easily tailored, is light weight and mildewproof. It may be scrubbed with soap and water without harm. It is available in standard 44-inch width in a range of interior colors. Samples are available.

Dacron Non-Woven Felts

An increasingly important role for non-woven felts of Dacron polyester fiber is forecast by Du Pont as the result of Troy Blanket Mills inaugurating commercial production of these new materials. The new felts, marketed under "Troyfelt," come in widths up to 40 inches in any required length, and in wide ranges of thickness, density, and permeability to fit specific end-use applications.

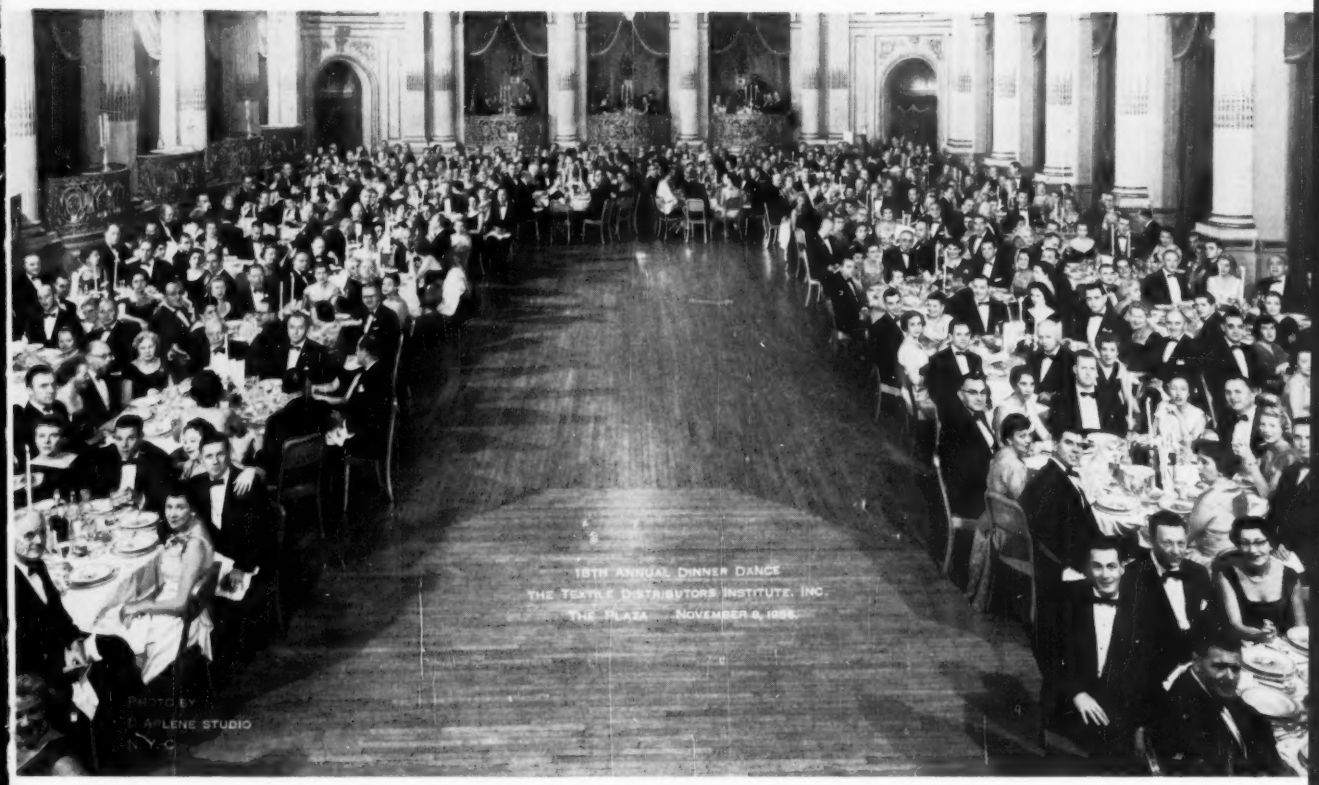
Avisco Blanket Licensed

First blanket manufacturer to be licensed under the Avisco Integrity Program is the Chatham Manufacturing Co., it was announced by American Viscose Corp. The Chatham Purrey line is the first to carry the Avisco tag. Blankets are the latest category of end products to be included in the Avisco quality control program that will eventually include all merchandise made from Avisco fibers. Specifications qualifying blankets to carry the Avisco tag after testing include construction, shrink resistance and color fastness plus appearance and recovery after laundering.

"Tres-Beau" Introduced

"Tres-Beau," a new fabric in the important drip-dry category that is a combination of Dacron, Egyptian cotton and nylon, has been announced by Beaunit Mills, Inc., New York City. The company reports the nylon adds strength plus the desirable quick-drying, no-iron properties; Dacron contributes further to its durability, resistance to wrinkling and iron-free advantages, and the Egyptian cotton content gives it absorbency, soft hand and drape. A novel presentation kit issued by Beaunit points up the stellar role that the new cloth will play in the intimate apparel market.

ANYONE YOU KNOW HERE?



Some of the people who attended TDI's dinner-dance last month

Dinner-Dance Turnout Breaks Record

A record-breaking attendance of 610 persons marked the annual dinner-dance of the Textile Distributors Institute at the Plaza Hotel in New York City on Nov. 8. Guests at the affair, which has come to be acknowledged as the outstanding social event of the textile industry, enjoyed dancing long after midnight.

Invitations, table lists and menus were printed in mauve in keeping this year's celebration by the textile industry of the Perkin Centennial. Walter Ross, Rosewood Fabrics, president of the Institute, made a brief speech of welcome. Fred Levinthal, chairman of the dinner for the past several years, was unable to be present because of illness. Sidney Frankel, Duval Fabrics, was chairman of the dinner arrangements committee.

Freight Rate Circular

Members of the Institute last month received copies of Freight Rate Circular No. 11 issued by the National Textile Traffic Bureau. The circular covers rates on unfinished man-made fiber textiles and mixtures as well as cottons shipped from southern and eastern gray cloth mills to eastern or southern finishing plants. These rates are thoroughly indexed and are applicable to shipments via rail or motor carrier in quantities shown on the cover. Copies were supplied to Institute members free of charge. Supplements will be supplied to keep the Circular up-to-date.

Outlook (Continued from page 30)

The present evolution in merchandising is leading in that direction. For the first time, substantial advertising and promotion budgets are available and being used to sell the idea of quality values. Standards are not fully defined as yet, in the sense of an extended and more comprehensive L-22. And they are not identified as yet, since there is no universal, industry-wide label denoting conformity. Nevertheless, successful promotion based on the quality concept will provide what has been lacking here-to-fore—sales appeal for quality—labeled merchandise.

REPORT FROM JAPAN

Wool fabric duties, likelihood of velveteen tariff increase cause worry among Japanese

By B. Mori

OSAKA—Cotton textile quota negotiations with United States are approaching a climax amidst agreement on general policy and principle and sharp disagreement on detail. Meanwhile, it appears that the arguments may be academic. Month by month shipments of cotton piece goods and woven apparel have been dropping lower and lower to almost unimportant levels.

But production of cotton yarn and fabric have achieved highest post-war levels in recent months while both domestic and total export sales are not keeping pace. As a result, it would seem that Japan's cotton industry is building up to another inventory crisis.

Wool Duties Worry Japanese—Eisenhower's sudden imposition of Geneva reservation duties on wool fabric imports caught Japanese by surprise. Within past few years Japan has come to challenge England as a supplier of imported woolens. Prospects had looked bright for a big additional gain in 1957. What Japanese are fighting most strenuously now is British proposal of quota system assigned by countries, on basis of historical records which would give U.K. lion's share of business and almost freeze Japan out entirely.

Velveteen Duty Rise Not Liked—Also coming as shock was U.S. Tariff Commission's recommendation to almost double tariffs on velveteen—a shock because it came at time when new, lower, quotas were being worked out for 1957. Japanese have impression that left hand doesn't know what right is doing in U.S. Government—that Tariff Commission doesn't know that the Commerce Department is working on quotas with Japan.

Silk Exports Cheer Nippon—Brightest spot in the export picture is silk fabric business, which promises to be best (for the 1957 spring-summer season) since end of war. Not only is yardage growing steadily, but there is also growing emphasis on better-quality, higher-priced, goods.

Silk fabric exporters are working on new schedule of floor prices, based on raw silk floor price, to cover all silk cloths exported to U.S. and not just handful of staple constructions covered by old Japanese Government check-price system.

Removal of U.S. ban on pongee imports, following agreement with Japanese Government on procedure for certifying origin in Japan (and not Red China), came in time to ship substantial yardage to U.S. for spring season. Removal of ban was followed by rush of American orders.

Prolonged cold wet weather this fall has definitely cut down late silk cocoon crops. Instead of being even with 1955, current year's total crop will be 5 to 10% smaller. This has given rise to talk of shortage of raw silk for export toward end of season (May 31).

Scrapping of Looms Considered—Under new textile-equipment licensing law, Government has found there are some 180,000 excess looms in cotton-spun-rayon and silk-filament-rayon weaving mills. There are plans to remove them from production, either through export or scrapping, to prevent over-production beyond foreseeable fabric requirements of domestic and export trades.

Export of both filament and spun rayon fabrics continue to gain sharply, both to United States and to all countries in total, according to Government figures for third quarter and for first nine months of 1956. Rayon staple is about even with 1955; filament rayon yarn up a little; spun yarns down a little.

Japan's total export sales (contract validations) to U.S. were up 22.5% in first half of fiscal year (April-September) while total for all countries was up 26% over same 1955 period.

Government and business circles tend to discount Russian forecasts of trade between the two countries following signing of an interim peace agreement. U.S.S.R. has been buying Japanese filament rayon yarn, as has been Red China, the only textile item of any importance.

Regnery

(Continued from page 32)

since accomplished outstandingly good work in such areas as quality control, impurities in raw materials, moisture and scores of other problems faced by mills. "We are only beginning to scratch the surface," Regnery says, "in applying the proven techniques of scientific research to the manufacturing problems of the textile industry."

Walter Regnery believes that his decision to enter cotton manufacturing and settle in South Carolina was the best he ever made. "There are no ifs or buts about it," he says. "I liked textiles and I liked South Carolina from the start."

One associate who admires Regnery for his "long mind" on technical and business matters—he handles the complete selling operation, dealing with the parent organization in Chicago and with Joanna's New York sales agents—calls it a "lucky day" for Joanna "when that little guy came down from Chicago."

Combed Fabrics Added to Line

Joanna, a fairly large single unit, sends about half of its present production of 5.5 million yards of cloth a month to the parent company. About 70% of this is shade cloth. (The claim that three out of four shades raised or lowered in the U. S. each day are Joanna Western products has never been disputed.) But in recent years, with Joanna's expanded production and with a considerable trend toward paper shades (which, as Regnery comments, "doesn't help us here", meaning the cotton mill), the plant has heavily increased its production for other customers.

In doing so, the firm has mastered the transition from production divided between shade cloth and 80 x 80 print cloth to production of shade cloth and high quality fine combed goods. Not a yard of low return print cloth is made in the plant.

Walter Regnery had a choice in the highly competitive postwar period, and in the depression-hard textile years of 1953 and 1954. He could either try to compete on the cheaper constructions with mills set up entirely to clatter out 80 x 80 goods, which was unthinkable, or he could specialize.

"We decided, wisely I believe," he says, on the latter course "to reap the benefits of our many years of experience in high quality production."

Changeover Fraught with Problems

The changeover was not easy. The card room employes had to learn to handle much longer and finer fibered cotton, to install and learn the new combing operation and to produce much lighter rovings. Spinners had to become accustomed to using lighter carded yarns, producing much finer combed yarns of the highest quality, and even changing to reverse twist yarns. The weave rooms had to set up looms on multi-harness from two-harness operation, change over to lighter yarns, and at the same time maintain the highest type of quality production.

Joanna's almost legendary reputation for top quality accounted for orders for 500,000 yards of the new constructions even before a customer had seen a single yard.

The whole changeover was fraught with problems, as expected, and it is a tribute to the type of employes at Joanna, in Regnery's opinion, that the change was accomplished as easily as it was. Work habits of a lifetime had to be unlearned and relearned in many instances, but the big job was done. And he says, "We're doing all right." The plant is on a six-day production schedule for combed goods and on five days for shade cloth.

If quality production and technological advances are basic to Regnery's conception of mill management, the third, equally important, is his concern for the human element. In this, Walter Regnery is the very pattern of his father, the late W. H. Regnery, who died in 1954. The elder Regnery pioneered in profit sharing, paid vacations and other benefits in his Chicago plant, and in turn in the South Carolina mill. Profit sharing began at Joanna 20 years ago, when no other mill in this area had such a plan (even now few of them do). Bonuses paid in this way total more than $2.7 million. Paid vacations were given long before they were a common thing in southern mills.

In a revolutionary step taken in 1946, the "company store" in the model textile community was turned over to the Joanna Foundation to be run by employes with the profits going entirely to community health, educational and recreational activities. Shortly before his death, the elder Regnery came to Joanna to a meeting of the directors of the foundation and complimented them on the progress that had been made in this entirely new venture. He added that he was "happy to see my son, Walter, is taking an interest in the project, and that he is glad to do anything he can to assure its success."

The elder Regnery believed in and practiced the golden rule in his business and believed in sharing with his workers the profits that accrued from their efforts. There were no idle gestures on his part; he believed in these principles and applied them throughout his life. Both father and son have tried to inspire independence, rather than dependence on the mill, in their workers.

Shares With Workers

Long before any other mills in the South were doing it, the Regnerys were providing group insurance policies for their employes. This policy was adopted not just to offer the workers something free, but to encourage them in their own savings. At Joanna, the Regnerys also took the lead in giving workers free voluntary physical examinations. Another far-sighted management policy they introduced was to offer each employe the chance to buy land in a subdivision and to have built at cost a house of his own architectural choice.

Joanna wages are a few cents an hour ahead of prevailing wages in the area, not even including the profit sharing benefits. But Walter Regnery is careful not to be too far ahead—careful not to embarrass his fellow industrialists whose benefits for employes are not as far advanced as his. One day, however, he hopes that Joanna can be the pacesetter as to wages.

The Regnery "investment in people", to him, is worth while even if he did it only for the dollars and cents benefit that he believes is derived as a long run result. Especially is this true, Walter Regnery feels, when the "appreciation comes back to you" in such heart-warming ways as when his father was given a silver service set, quite spontaneously on the part of the workers for their loving affection for him over the many years; or in 1953, when Walter, a resident of Newberry, 15 miles east of Joanna, was named "Citizen of the Year", in Clinton, six miles west of Joanna. ■

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PAPERS OF THE
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A A T T

Statistical Quality Control — a modern management tool

By Dr. L. H. Hance

FROM personal experience, I approach the subject of statistical quality control with much enthusiasm. The experience from which my enthusiasm was generated occurred about four years ago. With a limited knowledge of statistics, I undertook the problem of developing a program for a large yarn mill. The job of selling supervisory management was also left to me. During the first six weeks of operating this program, the mill saved a large sum of money. Since this experience, I have seen a full section develop at our Institute in this field and the installation of similar programs in a large number of the member mills who support the Institute of Textile Technology. The interest in these programs has been accelerating because mills have found them to be tools for (1) achieving better quality from existing equipment and (2) cost-savings in manufacturing.

Many mill-men who are unfamiliar with this subject probably regard statistical quality control as complicated, theoretical and not practical. So little has been said about the reduction of this subject to a simple and practical plane! My purpose in this paper is to present these points in a simple fashion so that you will know why statistical quality control is needed in the textile industry, how it operates, how it benefits, and how it may be sold to management.

It would be presumptive to imply that industry of today is unconcerned about control of quality. For more than 10,000 years man has been putting parts together and deciding that some parts fit while others do not. In the 1700-1800 period the idea of "custom" manufacturing was considered the only means of making a good product. When demand for more rapid production of parts began in the late 1800's, manufacturers were forced to decide on a "go, no-go" scale for measuring quality. The concept of tolerance limits grew and "exactness" was not so essential. But some means of determining these tolerance limits was required.

The advent of World War II brought a recognition in the textile industry of the need for specific records on quality of product. Thus, we saw Quality Control Departments being established in textile mills. In the past few years, we have seen a further development, that of applying mathematical principles to the control of quality—namely, *Statistical Quality Control.*

Paper presented at Nov. 7 meeting AATT.

Why Control Quality?

With mass production techniques as the order of the day, the buyer still wants an "exact" product if it can be obtained. Customers therefore demand some level of quality. Manufacturers must produce this level of quality and be sure it is maintained. Can the manufacturer check every item he produces for each quality characteristic? More time would probably be required for checking than would be required for producing!

Thus, to insure himself of his quality and to protect himself from customer dissatisfaction, the manufacturer must sample his products and gain an estimate of his overall production. The manufacturer must have the means for knowing whether or not he has tested too much or too little. He must also be able to decide, based upon what testing he has done, if the quality of his product is or is not at the desired level and under control.

Quality control programs are therefore necessary

(1) To achieve and maintain some quality level.
(2) To sample production to be sure the quality level is maintained.
(3) To point out areas where trouble exists when the quality level is not maintained.

L. H. Hance

Dr. Hance is president of the Institute of Textile Technology, a non-profit research and educational organization. After graduation from Clemson College, he attended the Institute and received from it his M.S. and Ph.D. degrees. Thereafter he served on the Institute's staff and was elected president in 1953.

(4) To assist in gaining the ultimate from the resources at hand; namely, raw materials, machines, plant, and personnel.

Why do we need mathematics to help us achieve quality? After all, superior quality has been produced in the past without much assistance. The answer to this question is another question: "But at what cost?" To produce in large volume at a high quality level and compete cost-wise, the manufacturer must sample his production and test it for quality characteristics. He must be able to interpret the results he obtains from his testing in terms of controlling this quality with a minimum of testing. What data does he seek from such testing and how can he use it?

Average Values and Variation

Most textile men are familiar with an average value of several items tested. In addition, however, you should also be concerned with the variation about the average. Note in Figure 1 that both rovings have the same hank size, but Lot Number 1 has many more bobbins close to the average than Lot Number 2. Therefore, although both lots have the same average, they do not have the same *variation about the average*, and Lot Number 1 is the lot of better quality.

You probably have had the same experience in evaluating the strengths of sewing threads, greige fabrics, or fabrics after resin-treatment.

But how do we place a numerical value on this variation? In statistical methods, we use the *standard deviation* for this purpose. If each test value is called X, and has an average value, $\overline{X}$, for n items tested, then

$$\overline{X} = \frac{\Sigma X}{n}$$

and the standard deviation, S, is given by

$$S = \sqrt{\frac{\Sigma(X-\overline{X})^2}{n}} = \sqrt{\frac{\Sigma X^2}{n} - \overline{X}^2}$$

Size (H.R.)	Number of Bobbins Having Each Size	
	Lot No. 1	Lot No. 2
5.0		
5.1		
5.2		
5.3		
5.4		
5.5		
5.6		
5.7		
5.8		

Fig. 1—Comparison of two roving lots for hank size

In other words, by simply obtaining the square of the value of each test item, summarizing and dividing by the number of items tested, anyone can obtain a value for the standard deviation from the above equation.

This standard deviation may be converted to a percentage value through dividing by the average, in which case you have the coefficient of variation, V,

$$V = \frac{S}{\overline{X}} \times 100 .$$

The full meaning of this value for variation can be seen in Figure 2. Here, we see that if all values

Physical Meaning of Variation Coefficient

(Example, 50's Yarn, Coefficient = 3.0%)

GIVEN: Count, 50's
Coefficient of Variation, V, = 3%
Std. Deviation, σ, = Count × V = 50 × 3% = 1.5

THEN, from the statistical characteristics of the "normal curve," we may expect that:

Approx. 68% of all bobbins will size within $50 \pm 1\sigma = 50 \pm 1.5$
Approx. 95% of all bobbins will size within $50 \pm 2\sigma = 50 \pm 3.0$
Approx. 100% of all bobbins will size within $50 \pm 3\sigma = 50 \pm 4.5$

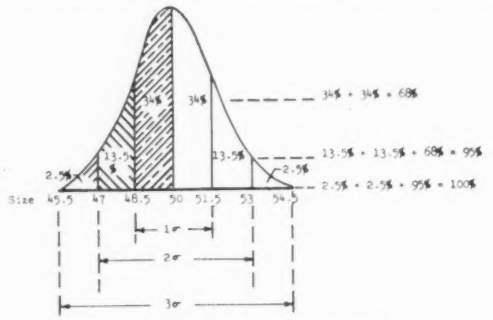


Fig. 2

of a given item were plotted about the average, we probably would obtain a curve, or frequency distribution. The standard deviation covers about 67-68% of the values about the average. Twice the standard deviation covers about 95% of the values about the average, and three times the standard deviation covers almost 100% of the values about the average.

Number of Tests

Now that we have two characteristics, let us see how these help in deciding whether or not we have tested enough samples. If you wish your sample to represent all of the items, say 95 times out of 100, and you can allow an error of say 3% from the true mean of all the items, the number of items tested is given by

$$n = \frac{t^2V^2}{E^2}$$

where t = 2, corresponding to 95% (or 3 for 99.7%)

V = variation expressed as a percentage

E = percentage away from true mean you can permit

(note, if E must equal true mean, it would be necessary to test every item in the production.)

Now we see that by decreasing variation, we should be able to reduce testing and still have the same values for t and E.

Control Charts

If we know the variation in a product and have the proper number of items tested, we can plot average values of each test about some average we wish to maintain, and also draw lines above and below this average to indicate when we have the particular quality characteristic under control. You can obtain ready-made tables for selecting the points for these control lines if you know the normal variation (either σ or V) and the number of items tested to get each average value you plot.

Note in Figure 3 that average lines are drawn for maintaining the count of a yarn (120-yard lengths), the hank size of a roving (12-yard lengths), and the grain weight of a sliver (1-yard length). The control lines shown were calculated on the basis of a known typical variation for each product and the number of items averaged to give one point on the plot.

Hence, a system of control charts like these could be used at any point in processing, and you would know you were in control unless points fell outside the control lines, in which case you would be sure that the change in average is not due to chance but to an assignable cause. In other words, you know if this quality characteristic is under control, and you know that action is required when points fall outside the control limits.

You can also note trends from plots such as those shown in Figure 3. It can be seen that the heavy sliver later shows up as a heavy roving and a heavy yarn. Note that when the sliver was made lighter on the 13th day, the process was brought under control and remained under control. The roving became lighter, as did the yarn, and both of these processes gave average values nearer the desired average.

So, not only can you tell when you have a quality characteristic under control, but you can also observe trends which indicate the source of trouble. Had you only looked at the yarn number chart, you would not have known that heavy sliver weights were causing the production of a heavy roving and consequently a heavy yarn.

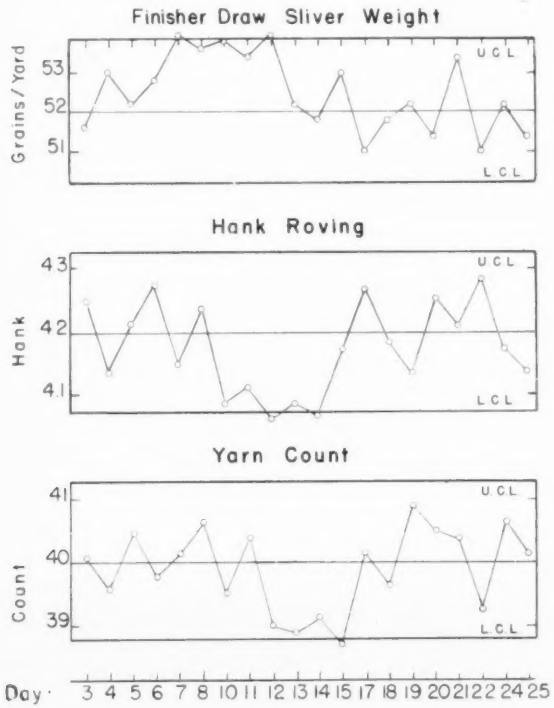


Fig. 3—Control charts for count control in a yarn mill, including drawing, sliver, roving, and yarn

Components of Variation

In addition to control charts, we can use another statistical tool in locating sources of variation. If you tested many items selected randomly from a group, you would now expect variation about an average. This variation in itself is made up of variation occurring because of different machines, different plants, etc. If lots were separated, we could find each variation. The sum total of these variations should equal the overall variation you obtained by selecting items randomly from all lots. This statistical law is expressed as:

$$V^2_{\text{overall}} = V_1^2 + V_2^2 + \ldots . V_n^2$$

A typical example is given in Figure 4 where these variations are shown graphically.

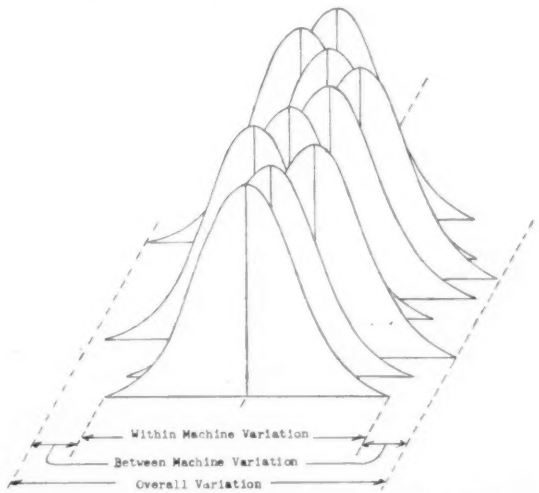


Fig. 4—Schematic diagram showing total variation composed of within and between machine variations

In a mill producing a given yarn number, bobbins are selected from frames. If we know the variation between frames and within frames, the overall variation could be approximated by:

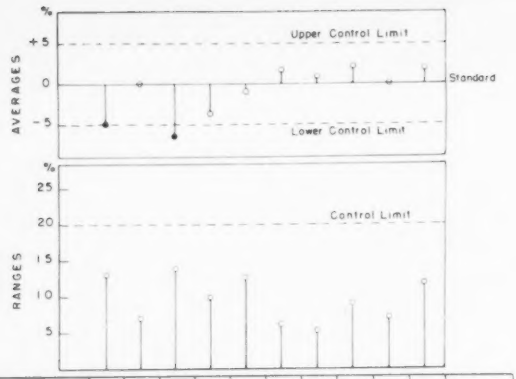
$$V^2_{\text{overall}} = V^2_{\text{between}} + V^2_{\text{within}}$$

Similarly, in feeding a roving to the spinning frame, we expect the spinning frame to add a small amount of variation to the overall variation of the roving. Therefore, we can examine the variation within a frame in terms of the overall variation from the prior process. The overall variation of the present process, as for example spinning, should always be equal to or larger than the variation within frames because of between-frame differences.

Thus, one might list the variations within and overall in controlling weights or size for each process in a yarn mill. With some practical experience, you can isolate those departments which are not doing the best job with the materials fed to them.

Value of Quality Control

Two simple tools have been demonstrated which serve as the bases for developing control charts and analyzing the components of variation within a process and between processes. Evidence has been provided for the usefulness of control charts in depicting when a process is under control and in supplying trends which aid in the location of the trouble. Control lines have been drawn and an overseer knows that points



Knitters		A	B	C	D	E	F	G	H	I	J		
Week Ending	Jan 3	-5	+1	+2	-10	+1	+1	+4	+7	-4	+3	Totals	Averages
	10	-6	-1	-10	-1	-6	-2	-1	-2	+3	+8		
	17	+1	+4	-8	0	+7	+3	+1	+3	0	-4		
	24	-7	-3	-12	-8	-3	+2	+3	-2	+2	+2		
	31	-12	0	-10	-3	-4	+4	-3	+4	-1	+1		
Ranges		13	7	14	10	13	6	5	9	7	12	96	9.6
Averages		-5.8	0	-7.6	-4.4	-1.0	+1.6	+0.8	+2.0	0	+2.0	-12.4	-1.2

Fig. 5—Control chart application for standard performance of knitters, including chart for ranges of individual knitters

falling outside these lines indicate that action is required. When points are within the control lines, the overseer knows this quality characteristic is under control. He can relax; he does not have to "guess."

In Figure 5, you see another illustration of the use of control charts. The performance of knitters is recorded as a percentage above and below standard. By plotting the range of each knitter's performance, we also learn that some knitters show very erratic results while others are very consistent.

But what of analyzing components of variation? Figure 6 shows the results of a "count control" study of the weights of products in a combed yarn mill. Variations within a process and overall variation are given for each process. Before a quality control program was installed, this mill had excessive variations in carding-overall, combing-overall, and drawing-within machine. After the quality control program had been operating for several months, these variations were reduced drastically. The effect of this reduction is seen in the yarn, but more work can be done in spinning to effect further reductions.

This mill indicated that in addition to the improved quality of yarn as a result of this simple program, the mill also experienced better running quality in each department. Better running work means eventual savings in labor costs and increased morale of workers who prefer a mill where the work flows smoothly.

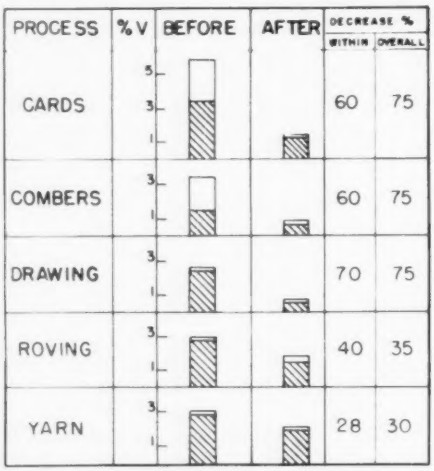


Fig. 6—Comparison of size variation coefficients before and after statistical quality control

Selling Quality Control to Management

Now, how do we sell management on trying some form of statistical quality control? First, we try some simple program, on a small scale, involving an important quality characteristic for which data exists. Such a program might be developed for controlling counts in a yarn mill. Those of you who are interested in the finishing, converting, and merchandising fields can find some single item of similar importance around which you can plan a program.

But what will be management's reaction? Here are some of the reactions you may encounter:

1. Such programs are too theoretical and have little practical significance.
2. The work required is too complicated for my people.
3. Too much paper work is required.
4. More help and eventually more testing will be required.
5. We are too busy with other things at present.
6. I just can't visualize the program operating in my plant.

Against these reactions, what bonus values of a statistical quality control program can we cite? First, if a manager wants to make a better product with existing equipment and have better running work, then he ought to look at such a program. You have seen that rather than being complicated, the basis for the program can be made simple and ready-made tables can be used by people already working in mill laboratories. Since much of the testing and recording is already being done, little additional work will be required to plot a point on a chart. The analysis of components of variation probably would only be made about once every two to three months.

Rather than being too busy, management should be busy seeing what this program can accomplish. After all, items such as quality, best utilization of equipment, best performance by each department with what is given to it; good running work, and high morale are the major interests of production management. That money is saved or made in addition should attract all levels of management. And each of these items can be affected by proper utilization of a statistical quality control program.

Conclusion

Quality, or goodness of product, is thus seen as not something produced by accident. It is the result of planned and controlled manufacturing. Quality, like cost, is not the result of one factor, person, or department. It represents the coordinated efforts of every part of an organization.

In this paper we have shown some basic tools for developing a statistical program of controlled quality which can be used:

1. To control a process with precision.
2. To isolate sources of variation.
3. To assist in correcting trouble.
4. To improve quality, production, running quality, morale, and the cost picture.

Thus, it is seen that the apparent paradox of better quality at lowered cost can, and has been, in actuality accomplished by those mill managements which have taken advantage of the benefits attainable through statistical quality control. ■

Call MILTON for dependable BEAMS

Light Metal featuring continuous welded construction

NYLON & RUBBER YARN BEAMS

FORGED HEADS
RIGID BARRELS

Forged heat-treated aluminum alloy heads and extra heavy wall barrels designed to withstand extreme pressures of monofilament; fine denier; low-turn nylon; and rubber yarns. 13¾" and 21" diameter heads.

SECTION BEAMS

Adaptable to all makes of warpers. Cast aluminum alloy heads and extruded aluminum barrels cannot shrink, swell, splinter or distort.

STEEL BARREL
WARP BEAMS
for BROAD, NARROW FABRIC, RIBBON, VELVET AND CARPET LOOMS

BROADLOOM BEAMS

for C & K and Draper Looms

Shown above is Milton's stud construction (also made with cast iron hubs).

RIBBON LOOM BEAMS

Adjustable head with fixed shaft, or fixed head with removable shaft.

WRITE FOR FREE BULLETINS

MILTON MACHINE WORKS
INCORPORATED
DESIGNERS • ENGINEERS • MANUFACTURERS
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Textile News Briefs

Mercerizing Machine Data

H. W. Butterworth & Sons, Bethayres, Pa., is offering two new bulletins, 711-E and 558-E, which provide complete information on the Benninger chainless mercerizing machine for piece goods.

Dan River Shirting Unit

The formation of a new department in the company's sales and merchandising organization headquarters in New York has been announced by Dan River Mills. The new unit will concern itself exclusively with design, manufacture and sale of confined styles for the shirt trade. Charles C. Bassett, will manage the new department.

New Hinnekens Catalog

Copies of its new 60-page catalog describing the firm's textile dyeing and finishing machinery can now be obtained on request to the Hinnekens Machine Co., Paterson, N. J.

To Produce 3-D Fabrics

Collins & Aikman Corp., a leading manufacturer of textiles, has been licensed by the textile division of United States Rubber Co. to produce three-dimensional fabrics coming within U.S. Rubber's patent and patent applications.

Heller Acquires Academy

William Heller, Inc., producer of wool and synthetic jerseys, has acquired Academy Knitted Fabrics Corp., Mt. Vernon, N. Y. Academy's production of pile and fleece fabrics will be continued by the new management.

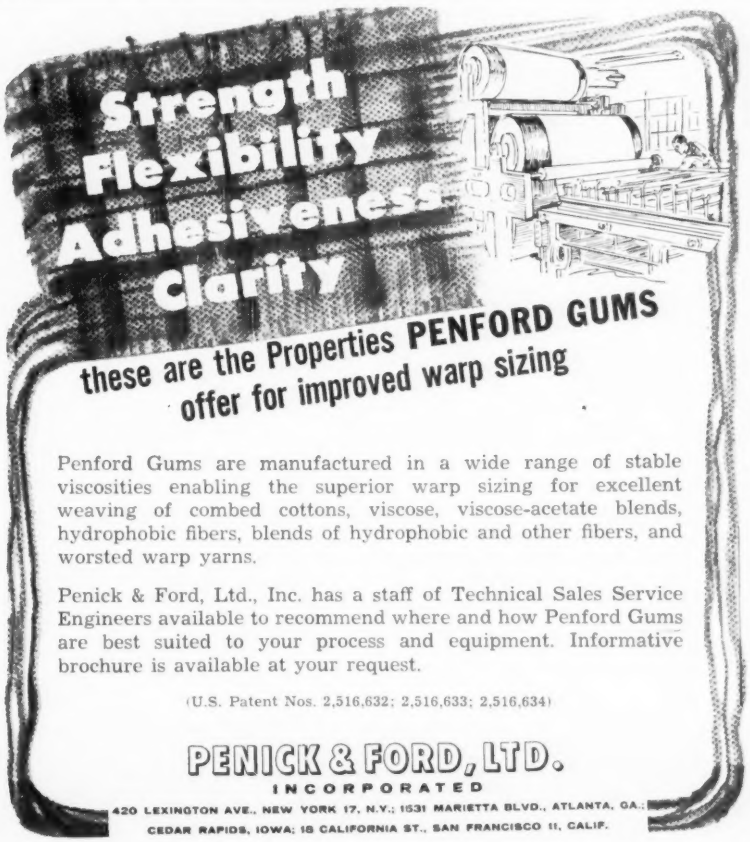
New Orlon Plant

A new plant to produce Orlon acrylic staple fiber and tow will be built by the Du Pont Company at Waynesboro, Va. Capacity of the plant will be 40 million pounds a year. This will bring Du Pont's capacity to produce Orlon to over 100 million pounds yearly. The new plant will adjoin the company's acetate unit at Waynesboro. It is expected that the new Orlon unit will be completed late in 1957.

Bigelow Carpet Wool Plant

Bigelow-Sanford Carpet Co. is building a carpet wool preparation and yarn-making plant at Calhoun Falls, S. C. The construction is scheduled for completion in the second half of 1957 and will operate under the name Rocky River Mills.

(Continued on page 67)



these are the Properties PENFORD GUMS offer for improved warp sizing

Penford Gums are manufactured in a wide range of stable viscosities enabling the superior warp sizing for excellent weaving of combed cottons, viscose, viscose-acetate blends, hydrophobic fibers, blends of hydrophobic and other fibers, and worsted warp yarns.

Penick & Ford, Ltd., Inc. has a staff of Technical Sales Service Engineers available to recommend where and how Penford Gums are best suited to your process and equipment. Informative brochure is available at your request.

(U.S. Patent Nos. 2,516,632; 2,516,633; 2,516,634)

PENICK & FORD, LTD.
INCORPORATED
420 LEXINGTON AVE., NEW YORK 17, N.Y.; 1531 MARIETTA BLVD., ATLANTA, GA.;
CEDAR RAPIDS, IOWA; 18 CALIFORNIA ST., SAN FRANCISCO 11, CALIF.

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarns, staple and tow as reported by the producers in November, 1956. All prices are given as subject to change without notice.

RAYON FILAMENT YARN

American Bemberg

Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Twist Skeins	Twisted* Skeins & Cones	8½ Turns	High Twist Skeins & Cones 12 or 15 Turns		18 Turns
40/30	$1.49	$1.95	....	....		$2.08
50/36	1.24	1.50	....	....		1.72
65/45	1.14	1.30	....	$1.53	....	1.58
75/60**	1.04	1.18	....	1.41	$1.41	1.49
100/74**	.95	1.08	....	1.33	1.33	1.44
125/60	.94	1.05	$1.09	....	....	....
150/120	.93	1.02	1.12	1.27	....	....
300/225	....	.95	....	....	1.08	....

* Twisted includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.
** Spun Dyed Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Twist Tubes	No Twist Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Skeins & Cones	15 Turn Skeins & Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.00	1.00	....	....	....	....	....
65/45	1.05	....	....	....	....	$1.42	....
75/45**	.97	.97	$1.08	$1.08	$1.31	1.31	$1.39
75/54	.97	.97	1.08	1.08	....	....	....
100/60**	.89	.89	1.03	1.03	1.23	1.23	1.23
125/60	.84	.84	.99	.99	....	....	....
150/90***	.77	.77	.81	.81	....	1.15	1.15
150/120	.81	....	....	.93	....	....	....

** Bemberg Solution Dyed yarns are spun in 75/45 and 100/60 only. Black 15¢ per lb. extra; all other colors 35¢ per lb. extra.
*** Spun Dyed Black 15¢ per lb. extra.

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Twist Cones	5 Twist Cones
1516	150/90	....	$1.35
1517*	150/90	....	1.35
2000	200/120	....	.96
2025**	200/120	....	.96
3000	300/180	$1.00	....
4000	400/224	1.00	....
6000	600/360	.98	....
8000	800/450	.98	....

* Code 1517 can be run in warp or filling.
** Code 2025-Softer than 2000.

CUPIONI

Long Type A

Den/Fil	No Twist Skeins	2½ Twist Cones	3½ Twist Cones	5 Twist Cones
150/135	....	....	$1.20	....
275/135	....	....	1.05	....
450/372	....	$1.05	....	....
600/372	....	1.02	....	....
900/372	....	1.02	....	....
1250/372	....	1.02	....	....
2500/744	....	1.02	....	....

Type B

50/30	$1.34	....	....	$2.09
70/45	1.24	....	1.59	....
100/60	....	....	1.43	....
150/90	....	....	1.20	....
275/135	....	....	1.05	....
450/200	....	1.05	....	....
600/360	....	1.02	....	....

SPUN DYED BLACK 35¢ PER LB. EXTRA.
This applies to 150 and 275 denier only.

Type C

150/112	....	....	....	1.20
275/180	....	....	....	1.05
450/180	....	....	....	1.05
600/225	....	....	....	1.02
900/372	....	1.02	....	....
1250/372	....	1.02	....	....
2500/744	....	1.02	....	....

Modified Type C

100/60	....	....	....	1.43
150/120	....	....	....	1.25

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight allowed to Memphis, Tennessee. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold f.o.b. delivery point.

American Enka Corp.

Current Prices
Standard Quality Yarns

Standard Quality Rayon Yarns

A. Natural:

Den/Fil.	Luster	Turns	Weaving Cones	Beams	Skeins Long	Skeins Short	Cakes	3 Lb. Knotless Cakes	Knitting Cones
50/18	E	5 S							1.51
75/10	B	3 S&Z					1.03		
75/18	E	4 S							1.17
75/30	B	4 S&Z	1.12	1.12			1.03		1.12
75/30	B	8 S	1.17			1.32			1.17
75/45	P,E	2.5, 4, 5 S&Z	1.12	1.12	1.18		1.03		1.12
75/60	P	3 Z	1.17						
100/14	B	3 S&Z					.91		
100/40	B,E	12 S							1.22
100/40	B,P,E	4, 5 S&Z					.91		.99
100/40,60	B,P	2.5 S&Z	.99	.99	1.03	1.07	.91		.99
100/60	E	2.5 S	1.01	1.01			.93		
125/40	E	3 Z							.91
150/40	B,P,E	2.1,3 S&Z	.86	.86	.89	.94	.81	.81	.85
150/40	B,E	5 S	.86		.89	.94			
150/40	B,E	8 S&Z	.92		.95	1.00			
150/90	B,E	2.1 S&Z	.87	.87			.82		
200/40	P	3 Z							.79
250/60	P,E	2.4 Z							.72
300/50	B,E	3 S	.70	.70					
300/60	B,P,E	2.1 S&Z	.70	.70		.73	.68	.68	.70
300/60	B	3.5 S	.70	.70			.68		
300/60	B	4.3 S	.73	.73			.71		
300/60	B	7 S	.80						
300/40, 120 H.T.	B	2.5, 3, 4 S	.72	.72					
450/80	B	3 S	.67	.67			.65	.65	
600/80,120	B,E	3 S	.66	.66			.64	.64	
900/120	B	3.4 S	.65				.63	.63	
900/120 H.T.	B	3.6 S	.67				.65	.65	

B—Briglo, P—Perlglo (semi-dull), E—Englo (dull), H.T.—High Tenacity.

B. Tinted Yarns: 5¢ additional per lb.

"Jetspun" Colored Yarns

Den/Fil.	Tenacity	Turns	Weaving Cones	Beams	Cakes	Colors
100/40	Regular	2.5S	1.34	1.34		All
100/60	Regular	4 S&Z			1.26	All
150/40	Regular	2.1S	1.21	1.21		All
300/40	Regular	3.4S	1.05			All
450/80	Regular	3.0S	1.02			All
600/80	Regular	3.4S	1.01			All
900/120	Regular	3.4S	1.00			All
300/40	High	3.4S	1.07			All
600/80	High	3.4S	1.03			All
900/120	High	3.4S	1.02	1.02		All

Terms: Net 30 days F.O.B. Enka, North Carolina or Lowland, Tennessee. Minimum common carrier transportation charges prepaid to first destination on or east of the Mississippi River.

American Viscose Corp.

Effective January 23, 1956

Graded Yarns

Denier	Filament	Type	Short Skeins	Long Skeins	All Cones Beams Tubes	All Cones Cakes
50	20	Bright & Dull	$	$1.54	$1.51	$1.40
60	10	Bright	....	....	1.36	1.25
75	10-30	Bright	1.19	1.15	1.12	1.03
75	30	Dull	....	....	1.12	1.03
100	14-40	Bright	1.07	1.02	.99	.91
100	60	Dull	....	....	1.01	.93
150	24-40-60	Bright & Semi-Dull	.94	.89	.86	.81
150	40	Dull	....	....	.86	.81
150	90	Dull	....	....	.87	.82
200	10-44	Bright	.87	.82	.79	.75
250	60	Semi-Dull & Dull	.79	.75	.72	.70
300	44	Bright & Dull	.76	.73	.70	.68
300	50	Bright	....	....	.70	.68
300	234	Dull	....	....	.72	.70
450	100	Bright	....	.69	.67	.65
600	100	Bright	....	.68	.66	.64
900	50-60-100-150	Bright	....	.67	.65	.63
1200	75	Bright	....	.64	.62	....
2700	150	Bright	....	.67	.65	....

Extra Turns Per Inch

75	30	Bright 6-Turns	$1.31	$1.27	$1.24	$
100	40	Bright 6-Turns	1.19	1.14	1.11	1.03
150	40	Bright 6-Turns	1.04	.99	.96	.91
300	15	Bright 5-Turns	....	....	.75	....
300	44	Bright 6-Turns	....	.83	.80	.78
600	30	Bright 5 Turns	....	.73	.71	.69

Rayflex Yarns

150	60	Rayflex	$	$	$ .89	$ .84
300	120	Rayflex	....	....	.72	.70
450	120	Rayflex	....	....	.69	.67
600	234	Rayflex	....	....	.68	.66
900	350	Rayflex	....	.69	.67	.65

New Enka Sales Office

American Enka Corp. has set up a South Central District office at 871 McCallie Ave., Chattanooga, Tenn., it was announced by C. Chester Bassett, Jr., general sales manager. Robert J. Mebane, Jr. will be in charge of the Chattanooga office.

Expanded Cellophane Output

Substantial expansion of manufacturing capacity for cellophane and "Mylar" polyester film has been announced by Du Pont. New facilities to be installed at the company's Clinton, Iowa, cellophane plant will permit a 10 million pound increase in output by mid-1958. Plans call for the addition of another 20 million pounds in capacity at other plants. New construction at Circleville, Ohio, will boost Du Pont's "Mylar" polyester film capacity by about 50%.

Arnel Yarn Bulletin

Properties of Arnel triacetate yarns and fibers, together with types of filament, staple and tow being produced, are reviewed in technical bulletin No. TD-12A now available from the Textile Division, Celanese Corp. of America, P.O. Box 1414, Charlotte 1, N. C. The 16-page bulletin presents new data on electrical properties of Arnel.

Personnel Changes

Dr. Robert K. Sponagel has become vice president in charge of production and chemical research and development for Toms River-Cincinnati Chemical Corp. **Dr. F. Max,** vice president and general manager, retired as of October 1.

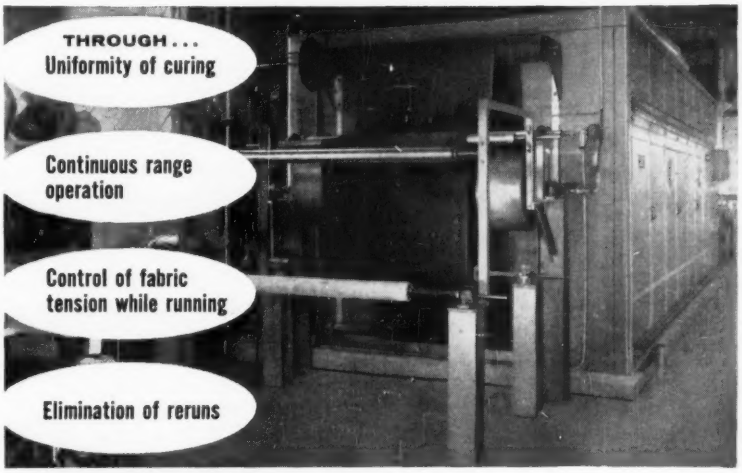
C. H. Draper

Clare H. Draper has been made manager of the Draper Corp., Greensboro division, succeeding **J. Craig Huff, Jr.** who returned to the Company's Hopedale office on a special assignment. **Paul Wilson** will assist Draper.

William A. Smith has been elected president of The House of J. Hayden Twiss, New York advertising agency, succeeding J. H. Twiss, who died October 5, 1956. **Fred J. Schlutow** has been elected First Vice-President and treasurer.

(Continued on page 73)

the new **PROCTOR ROLLER CURER**



DOUBLES PRODUCTION *at* **OXFORD** *

**The installation of a new Proctor Roller Curer together with rearrangement of existing facilities, has enabled the Oxford Finishing Company, Oxford, N.J., to increase production from 50,000 to 105,000 yards per day.*

NEW DESIGN FEATURES

New Proctor W construction reduces installation costs, provides efficient, air tight and well insulated housing—smooth, easy to clean surfaces. Uniform air distribution promotes uniform curing without shading. Variable speed motors power each alternate top roller.

Tension can be adjusted from minimum to maximum while the machine is in operation according to the requirements of the fabric being cured.

Unique roll drive permits Roller Curer being placed in range operation with no change in present drive arrangement.

To find out about the complete "Oxford Story" as well as the advantages of a Proctor Roller Curer in your mill, write for latest information bulletin #412.

PROCTOR EQUIPMENT FOR THE TEXTILE FIELD

AUTOMATIC BLENDING SYSTEMS • WEIGHING FEEDS • PICKERS • SHREDDERS • BALE BREAKERS • SYNTHETIC CARDS • GARNETTS • DRYERS FOR FIBROUS MATERIAL • YARN DRYERS • HOT AIR SLASHER DRYERS • CLOTH CARBONIZERS • ROLLER DRYERS AND CURERS • LOOP AGERS FOR PRINT GOODS • TENTER HOUSINGS • OPEN-WIDTH BLEACH SYSTEMS FOR WOVEN FABRICS • MULTIPASS AIRLAY DRYERS • NYLON SETTING EQUIPMENT • CON-O-MATIC WASHERS • CONTINUOUS BLEACH SYSTEMS FOR TUBULAR KNITS • EQUIPMENT FOR PRODUCING "REDMANIZED"® SHRUNK-TO-FIT FABRICS • CARPET DRYERS

PROCTOR & SCHWARTZ, INC.

PHILADELPHIA 20, PA.

Proctor

Manufacturers of Textile Machinery and Industrial Drying Equipment

Thick and Thin Yarns

150	40	Bright & Dull	....	....	1.10	....
150	90	Bright & Dull	....	....	1.10	....
200	75	Bright & Dull	....	....	1.02	....
300	120	Bright & Dull	....	....	.92	....
450	100	Bright & Dull	....	....	.89	....
490	120	Bright & Dull	....	....	.92	....
900	350	Dull	....	....	.97	....
920	120	Bright & Dull	....	....	.97	....

Colorspun Yarns

Currently producing regular tenacity and high strength at premiums of $.35 per pound.

Viscose Filament Yarns

The following deposit charges are made on invoices:

Metal Section Beams	$170.00 each
Wooden Section Beams	55.00 each
Wooden Section Beam Crates	30.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
32" flange	150.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
32" flange	75.00 each
Wooden Tricot Spool Crates	20.00 each
Cloth Cake Covers	.05 each

Same to be credited upon return in good condition—freight collect.
Terms: Net 30 days.

Celanese Corp. of America

Current Prices

Effective January 24, 1956

Den.	Fil.	Twist		Beams	Cones	Cakes	Non Shrunk Tubes
#49 and #14 Production							
75/30/3		Bright		....	$1.06	$.98	....
100/40/3		Bright		$.93	.91	.86	....
100/40/5		Bright		....	.97	.92	....
100/60/3		Bright		....	.92	.87	....
125/40/2Z		Bright		.89	.87	....	....
150/40/3		Bright		.84	.80	.75	....
150/40/2Z		Bright		.82	....	....	....
150/40/5		Bright		....	.86	.81	....
150/40/8		Bright		....	.92	.87	....
150/40/0		Bright	(Non Shrunk)	....	.66	....	....
300/50/3		Bright		.69	.68	.66	....
300/50/0		Bright	(Non Shrunk)	....	.60	....	....
#20 Production							
150/40/3		Bright		.82	.78	.73	$.72
150/40/0		Bright	(Non Shrunk)	....	.66	....	....
150/40/2Z		Bright		.82	....	....	....
300/50/3		Bright		.69	.68	.66	....
300/50/0		Bright	(Non Shrunk)	....	.60	....	....
#20 Production							
100/40/3		Dull		....	.91	.86	....
100/60/2Z		Dull		.95	....	....	....
100/60/0		Dull		....	.88	....	....
100/60/5		Dull		.99	.97	.92	....
150/40/3		Dull		.82	.78	.73	.72
150/40/0		Dull	(Non Shrunk)	....	.66	....	....
150/90/3		Dull		....	.85	.80	....
250/60/0		Dull	(Non Shrunk)	....	.64	....	....
250/60/3		Dull		....	.72	....	.67
#52 Thick & Thin Rayon							
150/60/3		Bright		....	1.10	....	....
450/120/3		Bright		....	.89	....	....

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.

Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Effective with shipments October 29, 1956

Bright and Dull

Den.	Fil.	Turns/ Inch Up to		(A) Cones, Beams, Tubes	Skeins	Cakes
40	20	3	Textile "Cordura"*	$1.90	1.90	$1.85
50	20	3		1.58	1.58	
50	20	3	Textile "Cordura"	1.60	1.60	1.55
50	35	3	Textile "Cordura"	1.65	1.65	1.60
75	10	3		1.12	1.15	1.03
75	15	3		1.12	1.15	1.03
75	30	3		1.12	1.15	1.03
100	15	3		.99	1.02	.91
100	40	3		.99	1.02	.91
100	60	3	Bright	.99	1.02	.91
100	60	3	Dull	1.01	1.04	.93
125	50	3		.91	.93	.85
150	40	3		.86	.87	.81
150	60	3		.86		
150	60	3	Textile "Cordura"	.87	.88	.82
150	90	3	Dull	.87	.88	.82
150	100	3	Dull	.87	.88	.82
200	35	3		.79	.81	.75
300	20	3		.70	.73	.68
300	50	3.5		.70	.73	.68
300	120	3	Textile "Cordura"	.71	.74	.69
450	72	3		.67	.69	.65
600	96	3		.66	.68	.64
600	240	3	Textile "Cordura"	.67	.69	.65
900	50	3		.65	.67	.63
900	144	3		.65	.67	.63
1165	480	3	Textile "Cordura"	.65	.65	.62
1800	100	3		.65		
2700	150	3		.65	.67	
5400	300	3		.72		

Thick and Thin

100	40	3	#7	1.38	....	1.38
150	90	3	#7	1.10	1.11	1.10
150	90	3	#19	1.10	1.11	1.10
200	80	3	#7	1.02	1.03	1.02
200	90	3	#19	1.02	1.03	1.02
450	100	3	#7	.89	.90	.89
1100	240	3	#50	1.32		1.32
2200	480	3	#50	1.14		1.14

Fiber E

300	50	2½	.88
900	50	2½	.83
900	90	2½	.83
2700	150	2½	.88
2700	270	2½	.88
5400	540	2½	.88

(A) 2¢/lb. additional for cones less than 3# and tubes less than 2#.
Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective January 27, 1956

Denier	Filament	Turns per In.	Type	2.8 Lb Cones	4.4 Lb Cones	Beams	2.2 Lb Tubes	4.4 Lb Tubes
100	40	2.5 "S"	Bright	.99		.99		
150	40	2.5 "S"	Bright	.86		.86		
150	40	2.5 "S"	Luster #4	.86		.86		
150	40	2.5 "S"	Bright intermediate strength	.87				
200	20	2.5 "S"	Bright	.79				
200	40	2.5 "S"	Bright	.79				
300	44	2.5 "S"	Bright	.70		.70		
300	80	2.5 "S"	Bright	.70		.70		
300	80	2.5 "S"	Luster #4	.70		.70		
300	80	2.5 "S"	Bright extra strong	.72		.72		
450	60	2.0 "S"	Bright		.67	.67		
600	90	1.5 "S"	Bright		.66	.66	.66	.66
900	50	2.0 "S"	Bright		.65	.65	.65	.65
900	150	1.5 "S"	Bright		.65	.65	.65	.65

Luster #4 is semi-dull.

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points east of the Mississippi River. PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

North American Rayon Corp.

Current Prices

First Quality Yarns	Den./Fil	Twist	Cones: Knitting*, Jacquard and Velvet Cones	Cones: No Twist Knitting Cones	Cones: Beams, Tubes** and Weaving Cones	Untreated Cakes
	75/30	3.5			$1.12	$1.03
	75/30	7			1.25	
	75/30	15			1.32	
	75/30	20			1.35	
Normal Strength Yarns	100/40/60 Brt.	3.5			.99	.91
NARCO	100/40/60	12			1.17	
	125/52/60	3	$.91		.91	.85
	125/52/60	10			1.08	
	135/52	3			.90	
	150/42	3	.85		.86	.81
	150/42	0		$.66		
	150/60	3			.86	
	150/75	3			.86	
	300/75	3	.70		.70	
	300/75	0		.60		
	300/75	6			.80	
	600/98	3	.66		.66	
	900/46	2.5	.65		.65	
	1800/92	2.5	.65		.65	
Semi-High Strength Yarns	300/75	3			.71	
Hi-NARCO	300/75	6			.81	

* Oiled Cones .01 per pound extra for Graded Yarns only.
** 1 lb. tubes $.02 per pound extra for Graded Yarns only.

Terms: Net 30 days f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates if sold f.o.b. delivery point.

RAYON HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective November 1, 1956

Tempra (High Tenacity)

Denier	Elongation	Beams & Cones
1100/480	Low	.59
1230/480	High	.59
1650/720	Low	.55
1820/720	High	.55
2200/960	High & Low	.55

Suprenka (Extra High Tenacity)

1650/720	Low	.58
1900/720	High	.58
2200/960	Low	.57

* Beams Only.

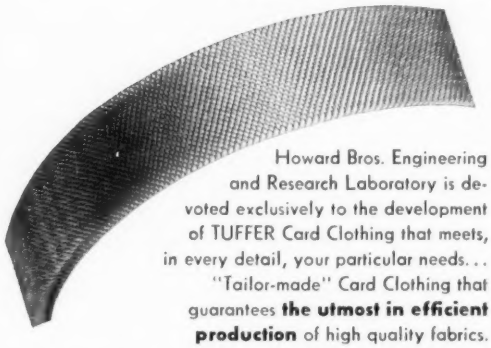
Terms: Net 30 days, f.o.b. Enka, North Carolina, or Lowland Tennessee; minimum freight allowed to first destination east of the Mississippi River.

Tuffer TRADE MARK

CARD CLOTHING

Engineered to your SPECIAL NEEDS

FOR SYNTHETIC FIBRES



Howard Bros. Engineering and Research Laboratory is devoted exclusively to the development of TUFFER Card Clothing that meets, in every detail, your particular needs... "Tailor-made" Card Clothing that guarantees **the utmost in efficient production** of high quality fabrics.

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Your inquiry involves no obligation.

C-6

HOWARD BROS.

Tuffer

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Southern Plants: Atlanta, Ga., and Gastonia, N. C.

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Are you paying for rings you don't get?

New DIAMOND FINISH standard rings AT SOME POINT IN TIME cost less than using old worn ones. Exclusive DIAMOND FINISH lubricated styles ON CERTAIN OPERATIONS can yield an immediate and large profit on the investment. May we help you study your rings to determine these profit-points for your mill?

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SPINNING DIAMOND FINISH RING CO.

Makers of Spinning and Twister Rings since 1873

Rep. for the Carolinas & Va.: W. K. SHIRLEY, 25 Oak St., Belmont, N. C.

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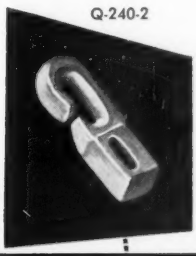
for LOWER COSTS

TBM-4



Q-240-2

MOH'S hardness 9.5
Specific Gravity..... 3.80
Water absorption... 0.0 impervious
Safe operating temperature. °C1500 °F2800

HEANIUM® TEXTILE GUIDES

Test samples of HEANIUM stock guides will be furnished without charge.

Address sample requests to Dept. 9

HEANY INDUSTRIAL CERAMIC CORP.

NEW HAVEN 3, CONN.

Southern Representative:
RALPH GOSSETT & CO.,GREENVILLE, SO. CAROLINA
Representative Engineer:
ROBERT CARROLL, 408 MC IVER ST., GREENVILLE, SO. CAROLINA
New England Representative:
AMERICAN SUPPLY CO., CENTRAL FALLS, R. I.

TBUSH-1

American Viscose Corp.

Effective November 1, 1956
Revised November 14, 1956

Super Rayflex

Denier	Filament	Twist	Beams	Cones
1100	490	0	$.63	$.63
1100	490	4.1Z	.63	...
1650	980	0	.58	.58
1650	980	4.1Z	.58	...
2200	980	0	.57	.57

Tire Yarn

1100	490	2.5Z	.59	...
1650	980	0	.55	.55
1650	980	3.2Z-3.6Z	.55	...
2200	980	0	.55	.55

High Strength

1150	490	2.5Z	.59	.59
1230	490	3.6Z	.59	.59
1650	980	3.5Z	.55	.55
1875	980	3.6Z	.55	.55

Super Rayflex, Tire Yarn and High Strength yarns are sold "Not Guaranteed for Dyeing."

Tire Fabric

	Tire Yarn	Super Rayflex
1100/490/2	$.69	$.73
2200/980/2	.635	.655

Above prices based on 80% minimum Carcass, 15% maximum Top Ply, 5% maximum Breaker.

1650/980/2

* Production Factor

525	Open	Carcass	$.635	$.665
300	490	Top Ply	.645	.675
115	275**	Breaker	.67	.70

* Determined by dividing total ends by picks.

** Orders limited to 5% of total 1650 Fabric booked for any given period.

The following deposit charges are made on invoices:

Beams	$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition—freight collect
Terms: Net 30 days.

Celanese Corporation of America

Effective December 27, 1955
Supersedes September 12, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	$3.00 lb.	$3.35 lb.
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "
60/2.5/80 Olive Green—Spun Dyed—OG106		4 lb. Cones	3.50 lb.

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U. S. A. east of the Mississippi River.

Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

Fortisan-36 Rayon Yarn
Bright

Denier and Filament	Twist	4# cones	8# cones	Tubes	Beams
270/280	0.8Z	$2.30			
300/280	0.8Z	$2.05			
400/400	0.8Z	$1.75			$1.70
400/400	0			$1.75	
800/800	0.8Z	$1.25	$1.25		$1.20
800/800	0			$1.25	
1600/1600	0.8Z	$1.15	$1.15		$1.10
1600/1600	0			$1.15	

Terms: Net 30 days. Shipments prepaid to any destination in U. S. A. East of the Mississippi River. Shipments West of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices
Effective with shipments October 29, 1956

"Super Cordura"*
(all packages)

1100	480	2	$.63
1250	480	2	.63
1650	720	2	.58
1900	720	2	.58
2200	960	2	.57
2450	960	2	.57

Beams containing ends of direct dyed yarn $3.30 per end extra.
Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective November 1, 1956

Unbleached Bright High Tenacity Yarns

SINGLE END BEAMS AND CONES:

Den.	Fil.	Turns Per In.	4.4 Lb. Cones	Beams	2.2 Lb. Tubes	4.4 Lb. Tubes
1100	480	1.5 "Z"	.62	.62	.62	.59
1650	720	1.5 "Z"	.58		.58	.55
2200	1000	1.5 "Z"	.57	.57	.57	.55
3300	1440	1.5 "Z"	.58	.58	.58	.55
4400	2000	1.5 "Z"	.57	.57	.57	.55

"Above Prices apply to Type 100. Type 200 Tyron Prices are 3¢ more."

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points east of the Mississippi River.

Prices are subject to change without notice.

North American Rayon Corp.

High-Strength Yarns—SUPER-NARCO

		Twist	Cones	Beams
1650	720	3Z		$.55
1850	720	3Z	$.55	
Super High Strength Yarns—				
1650	720	1.5Z	.58	.58

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates if sold f.o.b delivery point.

ACETATE FILAMENT YARN

American Viscose Corp.

Current Prices
Effective December 20, 1955

Bright and Dull
* Intermediate Twist

Denier & Filaments	Cones & 4-6 Lb. Tubes	Twister Tubes	Warps	Spinning Cones	Twist Warps
55/14	$.99	$.97	$1.00	$.93	$.94
75/20	.95	.93	.96	.89	.90
100/28	.91	.89	.92	.85	.86
120/32	.82	.80	.83	.76	.77
150/41	.74	.73	.75	.69	.70
200/54	.70	.68	.71	.66	.67
300/80	.66	.64	.67	.62	.63

* Standard Twist 2¢ additional.
Terms: net 30 days.

Celanese Corp. of America

Current Prices
Effective December 19, 1955

Bright and Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb Cones	Beams	4 & 6-TM Tubes	4-Pound Cheeses	Spinning Twist Cones	Beams	O Twist Tubes
45/13	$1.12	$1.13	$	$	$	$1.07	$ ....
55/15	.99	1.00	....	....	.93	.94	.875
75/20	.95	.96	.93	....	.89	.90	.79
75/50	.97	.98	.95	....	....	....	.84
100/26-40	.91	.92	.89	....	.85	.86	.77
120/40	.82	.83	.81	....	.76	.77	....
150/40	.74	.75	.74	.74	.69	.70	.66
200/52	.70	.71	.70	....	.66	.67	....
300/80	66	.67	.66	....	.62	.63	.60
450/120	.64	.65	.64	....	.60	.61	....
600/160	.62	.63	.62	....	....	....	....
900/80-240	.60	.61	.60	....	....	....	.58

3 to 5 Turns on Cones or Beams .... $.02 Additional
150 Denier 12 TM Tubes .... .73
55/0/15Dull Tricot Beams .... .935
2-Pound Cheeses .... .01 Less Than 4-Pound Cheeses
2-BU and 4-BU Tubes .... Same Price as 4 and 6-Lb. Cones

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.

Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

Celaperm Filament Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.37	$1.38	$1.31	$1.32
75/20	1.34	1.35	1.26	1.29
100/26	1.28	1.29	1.22	1.23
120/40	1.19	1.20	1.13	1.14
150/40	1.11	1.12	1.06	1.07
200/52	1.05	1.06	1.01	1.02
300/80	1.01	1.02	.97	.98
450/120	.99	1.00	.95	.96
600/160	.97	.98	....	....
900/80	.94	....	....	....

3 to 5 Turns on Cones or Beams — $.02 Additional

Effective March 11, 1955

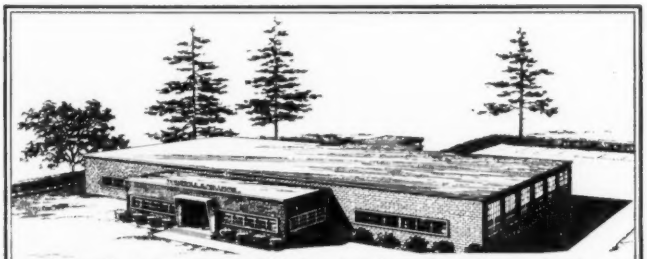
MARSHALL and WILLIAMS CORPORATION

cordially invites you to review

M & W Tentering Equipment

at either of our plants in

PROVIDENCE, R.I. *and* **GREENVILLE, S.C.**



Greenville, S. C. New M & W plant, including sales and service headquarters, housing both Marshall & Williams Southern Corp. and Marshall & Williams Equipment Co. Designed to speed service, this new 15,000 sq. ft. structure is on S. C. Bypass 291, South Pleasantburg Drive.

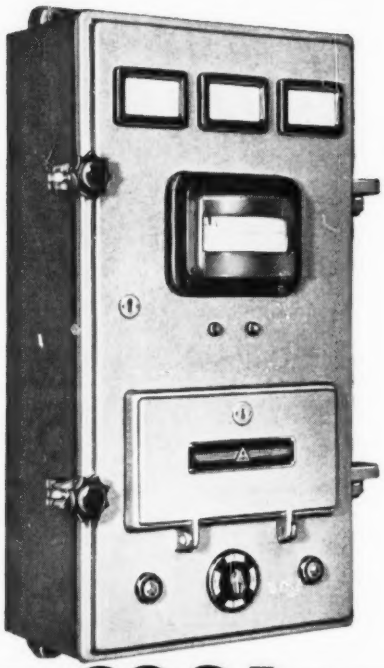
If you missed the Southern Textile Exposition, we will be glad to show you — and to discuss in detail — the latest in M & W developments. For years we have concentrated our entire efforts on the manufacture of tentering equipment of all kinds, and the development of auxiliary equipment which is a natural complement of tentering. The entire line includes —

HIGH SPEED TENTER FRAMES
MERCERIZING TENTERS
PIN TENTERS
TENTERETTES
TENSIONLESS BATCHERS
CONSTANT TENSION WINDERS
SWING PLAITERS
LET-OFF STANDS
OVERFEED EQUIPMENT
SELVAGE UNCURLERS
TENTER CLIPS
PIN PLATES & CLIPS

M & W

MARSHALL and WILLIAMS CORPORATION

PROVIDENCE, R. I. • GREENVILLE, S. C. • NEW YORK, N. Y.



NEW, Automatic Moisture Control

Mahlo TEXTOMETER

Provides Instant Correction Without Overcompensation

Completely dependable accuracy in the automatic moisture control of all textile dryers and slashers is now possible with the Mahlo TEXTOMETER. Machine speed responds instantly to the slightest change in moisture percentage—desired degree of dryness is always exactly correct. Overdrying is prevented. By permitting high machine speeds the TEXTOMETER provides increased production, more efficient steam consumption and power utilization.

Electrodes, in the form of roller or feeler contacts, transfer conductivity readings from the fabric to the TEXTOMETER which indicates them in moisture values. Any deviation from desired moisture content is quickly and automatically corrected by signals sent from the TEXTOMETER to a speed-control pilot motor. Differences in weight, thread count or yarn number of the material will not affect readings. Automatic control may be blocked off during shut-down or low speed periods. Since it is also available without the Automatic Control Unit, the TEXTOMETER has a scale calibrated in moisture % and colored signal lights which indicate "dry," "normal" or "moist" conditions.

Write for complete information

COSA TEXTILE DIVISION

Lay-on-air & Tenter Dryers, Padders & Other Finishing Mach. • Spindles • Roller Bearing Inserts • Automatic Moisture Control & Others

COSA CORPORATION, 405 LEXINGTON AVENUE, NEW YORK 17, N. Y.

Celaperm Black Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Intermediate Twist 4 & 6-Lb. Beams	Spinning Twist Cones	Spinning Twist Beams
55/15	$1.17	$1.18	$1.11	$1.12
75/20	1.14	1.15	1.08	1.09
100/26	1.08	1.09	1.02	1.03
120/40	.99	1.00	.93	.94
150/40	.91	.92	.86	.87
200/52	.85	.86	.81	.82
300/80	.81	.82	.77	.78
450/120	.79	.80	.75	.76
600/160	.77	.78	....	....
900/80	.74	....	....	....

3 to 5 Turns on Cones or Beams — $.02 Additional

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Acetate

Denier & Filament	Intermediate Twist 2 & 4 Lb. 5/8" Tubes	Intermediate Twist 4-6 Lb. Twist Tubes	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams	Zero Twist Tubes	Zero Twist Beams
45/13/24			1.12	1.13		1.07	1.05	
55/18/24			.99	1.00		.94	.875	.935
75/24		.93	.95	.96	.89	.90	.79	.89
75/50		.95	.97	.98			.84	
100/32		.89	.91	.92	.85	.86	.77	
100/66			.93	.94			.79	
120/40/50		.81	.82	.83	.76	.77	.73	
150/16			.78	.79			.69	
150/40		.74	.74	.75	.69	.70	.66	.69
200/60		.70	.70	.71	.66	.67	.65	
240/80			.68					
300/80	.66	.66	.66	.67	.62	.63	.60	.62
450/120	.64	.64	.64	.65	.60	.61		
600/160	.62	.62	.62	.63	.59	.60		
900/44/70/240	.60	.60	.60	.61	.59	.60	.58	
1800/88	.61	.61	.61	.62	.60	.61		
2700/132/210	.61	.61	.61	.62	.60	.61		
3200/160/210	.61		.61	.62				

A. 1‡ 5/8" Tubes—add .02 to 2 & 4 lb. 5/8" Tubes Price.

B. Regular Twist (3 thru 5 t.p.i.)—add .02 to Intermediate Twist Price.

C. 2 lb. Twisted Tubes—.01 less than 4 & 6 lb. Twisted Tubes on 150-200-300 Denier Intermediate Twist.

Color-Sealed

Denier	Intermediate Twist Twisted Tubes 2 Lb.	Intermediate Twist Twisted Tubes 4 & 6 Lb.	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams	Zero Twist Tubes	Zero Twist Beams
55/18			1.37	1.38		1.32	1.245	1.315
75/24			1.34	1.35	1.28	1.29	1.18	1.28
100/32	1.26	1.26	1.28	1.29	1.22	1.23	1.14	
150/40	1.10	1.11	1.11	1.12	1.06	1.07	1.03	1.06
200/60	1.04	1.05	1.05	1.06	1.01	1.02	1.00	
300/80	1.00	1.01	1.01	1.02	.97	.98	.95	.97

A. Regular Twist—add .02 to intermediate twist prices.

Black

Denier	Intermediate Twist 2 & 4 Lb. 5/8" Twisted Tubes	Intermediate Twist 4 & 6 Lb. Twisted Tubes	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams	Zero Twist Tubes	Zero Twist Beams
55/18			1.17	1.18	1.11	1.12	1.045	1.115
75/24		1.12	1.14	1.15	1.08	1.09	.98	1.08
100/32		1.06	1.08	1.09	1.02	1.03	.94	
150/40		.91	.91	.92	.86	.87	.83	.86
200/60		.85	.85	.86	.81	.82	.80	
300/40-80	.81	.81	.81	.82	.77	.78	.75	.77
450/120	.79		.79	.80	.75	.76		
600/160	.77		.77		.73			
900/44-70-240								
1800/88	.74		.74		.73			
2700/132-210	.74		.74		.73			
3000/210								

A. Regular Twist (3 thru 5 t.p.i.)—add .02 in intermediate twist prices.

B. 2 lb. Twisted Tubes are the same as 4 & 6 lb. except on 150-200 and 300 denier intermediate twist where the price is .01 less.

C. 1 lb. 5/8" Tubes—add .02 to 2 and 4 lb. 5/8" Tubes.

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective December 19, 1955

Estron Yarn, Bright or Dull — White

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Tubes	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams	Zero Twist Tubes
55/13	$1.01	$0.99	$0.97	$1.00	$0.93	$0.94	$0.87½
75/19	.97	.95	.93	.96	.89	.90	.79
75/49	.99	.97	.95	.98			
100/25	.93	.91	.89	.92	.85	.86	.77
120/30	.86	.84	.82	.85	.78	.79	
150/38	.76	.74		.75	.69	.70	.66
200/50	.72	.70		.71	.66	.67	
300/75	.68	.66		.67	.62	.63	.60
450/114	.66	.64		.65	.60	.61	
600/156	.64	.62		.63	.59	.60	.60
900/230	.62	.60		.61	....	....	.58
900 & Heavier	....	....	....	....	....	....	.58

Current Prices

Chromspun—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams
55/13	$1.39	$1.40	$1.37	$1.38	$1.31	$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	....	....	1.11	1.12	1.06	1.07
300/75	....	....	1.01	1.02	.97	.98
450/114	....	....	.99	1.00	.95	.96
900/230	....	....	.94	.95	....	....

Current Prices

Chromspun—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist & Spun Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.

Prices on special items quoted on request.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in the United States east of Mississippi River. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

RAYON STAPLE and TOW

American Viscose Corp.

Current Prices

Rayon Staple

	Bright and Dull
Regular	$ .32
Extra Strength	
1.0 Denier	.34
"Viscose 32A"	.36
"Avisco Crimped"	
1.25 Denier	.34
3.0 & 5.5 Deniers	.33
8.0 & 15.0 Deniers	.35
"Avisco Smooth"	
8.0, 15.0 & 22.0 Deniers	.37
Short Staple Blend	.34

Rayon Tow

Grouped Continuous Filaments (200,000 Total Denier)	
1.5, 3.0 & 5.5 Denier Per Filament	.34
9.0 Denier Per Filament	.36
Grouped Continuous Filaments (4400/300 & 2000/1500)	.65

Prices of other descriptions on request.

Terms: Net 30 days.

Celanese Corp. of America

Current Prices

Rayon Tow

	Bright & Dull
1.5, 3, 5 D.P.F.	.34
8 D.P.F.	.36

Courtaulds (Alabama) Inc.

Effective April 23, 1956

Rayon Staple

	Bright	Dull
1½ and 3 denier	$.31	$.31

Available in 1⅛", 1-9/16" and 2".

J. D. Wise

L. P. Weicker

James D. Wise has been elected chairman of the board at Bigelow-Sanford Co. **Lowell P. Weicker** succeeds him as president.

Robert L. Huffines, Jr. has resigned from the presidency of Amerotron Corporation. He has been succeeded by **Edmon G. Luke.**

A. Greenfield

Alfred Greenfield has been appointed assistant sales manager of Virginia-Carolina Chemical Corp.'s fiber division.

R. W. KixMiller

Richard W. KixMiller has been made a director of Celanese Corp. of America, succeeding **Charles F. Beran** who is now retiring.

Deaths

Fred G. La Piana, director of textile research for Stein Hall & Co., Inc. died on September 20th at the age of 71.

Camille Dreyfus Dies

Dr. Camille E. Dreyfus died on Sept. 28 after a brief illness. He was 77. Dr. Dreyfus was chairman of the board of Celanese Corp. of America. With his brother, the late Dr. Henry Dreyfus, he is generally credited with the first successful production of cellulose acetate. The Dreyfus brothers, natives of Switzerland, founded the American Celanese Corp., also British Celanese, Ltd. and Canadian Celanese, Ltd.

NOW
A "COMPLETE PACKAGE"

THE MODERN WAY TO BUY
THROWN, NATURAL OR DYED
FILAMENT YARNS

RAYON • NYLON • DACRON • ORLON

Modern standards of production efficiency and quality demand modern methods. The "complete package" — a perfectly thrown, natural or dyed package of filament yarn — prepared to your custom requirements by experts may be the ideal solution to your yarn problems.

As specialists in the exacting job of dyeing and throwing modern yarns since 1922, Hoffner is the logical choice for "complete package" service.

Why not consult us about this new way of streamlining your production and improving quality?

Hoffner RAYON COMPANY

"For that added touch of beauty"

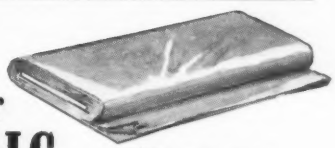
DYERS and THROWSTERS of MODERN YARNS

General Offices at Belgrade & Ontario Streets, Philadelphia 34, Pennsylvania

Plants at Philadelphia and Quakertown, Pennsylvania

SALES REPRESENTATIVES — David F. Swain & Company, 105 W. Adams Street, Chicago 3, Ill. Shannonhouse & Wetzell, Johnston Building, Charlotte 2, N. C.

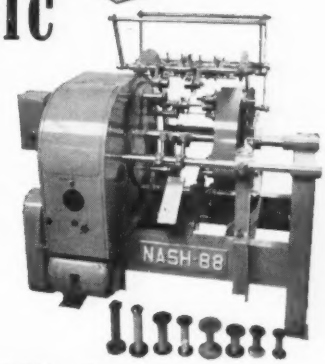
No YARN Or FABRIC



Is Produced On This

NASH 88

Automatic Bobbin Refinisher



— but defects in spinning or weaving resulting from the use of rough bobbins are effectively prevented . . . .

How The "NASH 88" Performs

Throwing and twisting bobbins are refinished at the rate of ten pieces per minute. Controlled abrasive action on the barrel, inside flanges, and over the top radius is provided. Inside surface and top radius of fibre flanges are furnished. All roughness is removed to prevent tearing of filaments. The "NASH 88" cleans as well as finishes.

Write For Illustrated Bulletin Today

SPECIAL FINISHING MACHINES • NASH • SINCE 1890

J. M. NASH Company

2365 N. 30th Street • Milwaukee 10, Wisconsin

"Coloray" Spun Dyed Rayon Staple

	1½ Den. 1-9/16"	3 Den. 2"	4½ Den. 6"	Price per Lb.
	(Code numbers for color and denier)			
Black	1404	1419	1425	37¢
Tan	8004	8019	8025	39¢
Medium Brown	8804	8819	8825	39¢
Silver Grey	1004	1019	1025	39¢
Terra Cotta	8204	8219	8225	39¢
Khaki	3004	3019	3025	40¢
Dark Brown	8604	8519	8525	40¢
Slate Grey	0804	0819	0825	43¢
Light Blue	4004	4019	4025	44¢
Sulphur	2004	2019	2025	44¢
Apple Green	5104	5119	5025	45¢
Peacock Blue	4604	4619	4625	46¢
Medium Blue	4204	4219	4225	48¢
Dark Blue	4404	4419	4425	49¢
Hunter Green	5404	5419	5425	49¢
Indian Yellow	2504	2519	2525	49¢
Pink	6004	6019	6025	50¢
Turquoise	4804	4819	4825	50¢
Malachite Green	5204	5219	5225	51¢
Red	7004	7019	7025	56¢

(In addition to the above, Black is also available in:
1½ den. 1⅛" (1401) 3 den. 1-9/16" (1416) 4½ den. 2"
3 den. 1⅛" (1413) 3 den. 2⅛" (1420) 4½ den. 4")

Terms: Net 30 days, f.o.b. LeMoyne, Alabama. Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Rayon Co.
Div. Bigelow-Sanford Carpet Co., Inc.

Rayon Staple

Effective February 8, 1956

REGULAR

1.5 denier Bright
1½" and 2" ..... 32¢

VISCALON 66 (Crimped)

8 denier 2" Bright ..... 35¢
15 denier 3" Bright ..... 35¢
15 denier 3" Dull ..... 35¢

"KOLORBON"—Solution Dyed Rayon Staple

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	45¢	45¢	....
Sandalwood	45¢	45¢	....
Nutria	45¢	45¢	....
Sea Green	45¢	45¢	....
Mint Green	45¢	45¢	....
Champagne	45¢	45¢	....
Cafe Brown	....	....	55¢
Midnight Black	....	....	45¢
Gold	48¢	48¢	....
Turquoise	45¢	45¢	....
Melon	48¢	48¢	....
Light Blue	45¢	45¢	....
Charcoal Grey	45¢	45¢	....

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

ACETATE STAPLE and TOW

Celanese Corp. of America
Current Prices

Staple

Celanese Acetate Staple	Bright & Dull
2, 3, 5.5 & 8 Individual Deniers	$.32
12 & 17 Individual Deniers	.33
35 & 50 Individual Deniers	.36
3/8" to 7/8" cut length (all deniers)—Premium	.03
Variable Acetate Fibers	.30
35 Individual Denier Flat Filament Acetate	.38

Tow

Celanese Celatow Acetate	Bright & Dull
2, 3, 5.5 & 8 Individual Deniers	$.34
12 & 17 Individual Deniers	.35
35 & 50 Individual Deniers	.37

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.

Prices subject to change without notice.
All previous prices withdrawn.

NON CELLULOSIC YARN

NYLON

Allied Chemical and Dye Corporation
"Caprolan" Tensile Tough Nylon

Effective September 24, 1956

Heavy Yarns

Denier	Filament	Turn/In.	Twist	Type**	Package	Price/Lb.
2100	408	0	0	HB	Paper Tube*	$1.27
2100	112	0	0	HB	Paper Tube	1.30
2500	408	0	0	HB	Paper Tube	1.27
2500	112	0	0	HB	Paper Tube	1.30
3360	544	0	0	HB	Paper Tube	1.26
3360	168	0	0	HB	Paper Tube	1.29
4200	680	0	0	HB	Paper Tube	1.26
4200	224	0	0	HB	Paper Tube	1.29
5000	816	0	0	HB	Paper Tube	1.25
5000	280	0	0	HB	Paper Tube	1.28
7500	1224	0	0	HB	Paper Tube	1.24
10,900	1632	0	0	HB	Paper Tube	1.24
15,000	2448	0	0	HB	Paper Tube	1.23

Terms—Net 30 days.

These prices are subject to change without notice. All prices are quoted F.O.B. shipping point.

Lowest freight cost prepaid or allowed east of Mississippi River.

* Paper Tubes non-returnable, no charge. Standard Put-up: 10 and 30 lb. packages.

** Type is used to describe luster and tenacity.
Type HB: High Tenacity, Bright.

American Enka Corporation
Nylenka Filament Yarn Prices

Effective March 16, 1956

Denier & Filament	Twist	Luster	Type	Tenacity	Package	Yarn Weight per Package	Price per Pound, Std.	Price per Pound, Sub.
15/1	0.8Z	semi-dull	9402	Normal	Pirn	1 lb.	$5.00	$4.80
30/6	0.5Z	semi-dull	9414	Normal	Pirn	2 lb.	2.25	2.10
30/8	0.5Z	semi-dull	9424	Normal	Pirn	2 lb.	2.25	2.10
40/8	0.5Z	semi-dull	9426	Normal	Pirn	2 lb.	1.90	1.75
50/13	0.5Z	semi-dull	9442	Normal	Pirn	2 lb.	1.80	1.70
100/24	0.5Z	semi-dull	9628	Normal	Pirn	2 lb.	1.60	1.55
100/32	0.5Z	semi-dull	9652	Normal	Pirn	2 lb.	1.60	1.55
200/34	0.5Z	bright	9822	Normal	Pirn	2 lb.	1.45	1.40
200/34	0.5Z	bright	9222	Normal	Cone	4 lb.	1.45	1.40
210/34	0.5Z	bright	9204	High	Pirn	2 lb.	1.45	1.40
210/34	0.5Z	bright	9214	High	Cone	4 lb.	1.45	1.40
840/140	0.5Z	bright	9202	High	Pirn	2 lb.	1.30	1.20
840/140	0.5Z	bright	9208, 9228	High	Cone	4 lb.	1.30	1.20
840/140	0.5Z	bright	9302	High	Beam	—	1.30	1.20

Pirns charged at $.25 each. Deposit refunded upon return of pirn in good condition. Cones are non-returnable. Beams and cradles are deposit carriers and remain property of American Enka Corporation.

Terms: Net 30 days. Minimum common carrier transportation charges will be prepaid and absorbed to the first destination on or east of the Mississippi River. In prepaying transportation charges, seller reserves the right to select the carrier used.

The Chemstrand Corp.
Current Prices

Effective October 1, 1956

Denier	Filament	Twist	Type*	Package	Standard Price/Lb.	Second Price/Lb.
10	1	O	SD	Bobbins	$8.00	$7.60
15	1	O	SD	Bobbins	5.00	4.80
15	1	O	D	Bobbins	5.05	4.80
30	10	Z	SD	Bobbins	2.25	2.10
40	7	Z	SD	Bobbins	2.00	1.75
40	13	Z	SD	Bobbins	1.90	1.75
40	13	Z	SD	Spools	2.00	....
40	13	Z	D	Bobbins	1.95	1.75
40	13	Z	D	Spools	2.05	....
50	17	Z	SD	Bobbins	1.80	1.70
70	34	Z	SD	Bobbins	1.60	1.55
70	34	Z	B	Bobbins	1.60	1.55
70	34	Z	HB	Bobbins	1.65	1.55
70	34	Z	D	Spools	1.75	....
80	26	Z	SD	Bobbins	1.60	1.55
100	34	Z	SD	Bobbins	1.60	1.55
100	34	Z	HB	Bobbins	1.65	1.55
140	68	Z	SD	Bobbins	1.55	1.50
200	34	Z	B	Bobbins	1.45	1.40
210	34	Z	HB	Bobbins	1.45	1.40
210	34	Z	HB	Spools	1.50	....
210	34	Z	HB	Beams	1.50	....
260	17	Z	HB	Bobbins	1.45	1.35
260	17	Z	HB	Spools	1.50	....
420	68	Z	HB	Bobbins	1.35	1.25
630	102	Z	HB	Bobbins	1.35	1.25
840	136	Z	HB	Bobbins	1.30	1.20
840	136	Z	HB	Tubes	1.30	1.20
840	136	Z	HB	Beams	1.30	....
840	140	Z	HB	Beams	1.30	1.20
840	140	Z	HB	Tubes	1.30	1.20

* *Types:* D—Dull; SD—Semi-dull; B—Bright; H—High tenacity.

Bobbins are invoiced at 25¢ or 45¢ each, depending on type; tubes are invoiced at 40¢ each; spools invoiced at $77.00 and $95.00 depending on type; and beams and crates for beams are invoiced at $220 and $25 respectively.

Prices subject to change without notice.

THREAD CLEANING

Type "F", illustrated, is only one of eight models in the D.F.D. family. Circulars of other types will be sent on request.

This "F" Type Cleaner has recently proved to be the most versatile of the eight different models of D.F.D. Cleaners, owing to its adaptability to the latest models of textile machines. For further information, ask for our brochure on Type "F", The Versatile Cleaner.

The unique D.F.D. system of reversible blades provides four sizes of openings with two blades, ten sizes with three blades and eighteen sizes with four blades. Cleaner designed to create oscillating motion of threads; prevents early cutting of hardened tool steel blades.

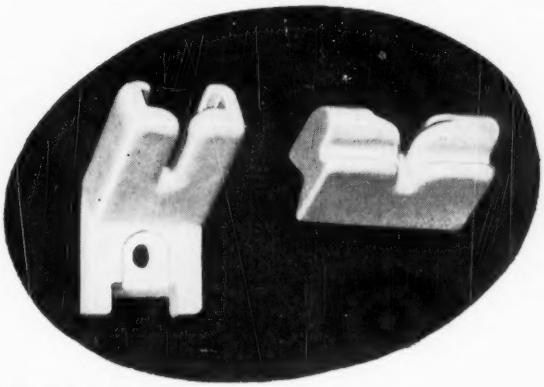
Write for Details

COLLINS

SUPPLY & EQUIPMENT CO. 36TH YEAR

1357-97 Monsey Ave. **Scranton 2, Pa.**

Nothing is impossible
unless you have to do it yourself.



We who manufacture

LAMBERTVILLE THREAD GUIDES

can't make a guide that lasts *forever*. We *can* and do produce long wearing dimensionally accurate guides that give the most economical and satisfactory service. Available in white or 'Durablu' finish. Write for catalog and samples.

LAMBERTVILLE CERAMIC
AND MANUFACTURING COMPANY
LAMBERTVILLE **NEW JERSEY**

She's better suited with
TITANOX®

TITANOX titanium dioxide pigments are first choice for that delustered appearance of suits made of modern synthetics. Efficient delustering at low pigmentation is achieved through the unique light-scattering properties of these pigments. Titanium Pigment Corporation (subsidiary of National Lead Company), 111 Broadway, New York 6, N. Y.; Atlanta 5; Boston 6; Chicago 3; Cleveland 15; Houston 2; Los Angeles 22; Philadelphia 3; Pittsburgh 13; Portland 14, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier	Filament	Turn/In.	Twist	Type*	Package	1st Grade	2nd Grade
7	1	0	O	200	Bobbin	$9.00	$8.55
10	1	0	O	200	Bobbin	8.00	7.60
12	1	0	O	200	Bobbin	7.00	6.65
15	1	0	O	200	Bobbin	5.00	4.80
15	1	0	O	200	Tricot Beam	5.15	—
15	1	0	O	680	Bobbin	5.05	4.80
15	1	0	O	680	Tricot Beam	5.20	—
15	3	¼	Z	200	Bobbin	5.00	4.80
20	1	0	O	200	Bobbin	4.00	3.80
20	7	½	Z	200	Bobbin	2.75	2.55
20	7	½	Z	680	Bobbin	2.80	2.55
20	20	¾	Z	209	Bobbin	6.00	—
30	10	½	Z	100/200	Bobbin	2.25	2.10
30	10	½	Z	680	Bobbin	2.30	2.10
30	26	½	Z	200	Bobbin	2.35	2.10
40	7	½	Z	200	Bobbin	2.00	1.75
40	13	½	Z	100/200	Bobbin	1.90	1.75
40	13	½	Z	200	Tricot Beam	2.00	—
40	13	½	Z	400	Bobbin	2.00	1.85
40	13	½	Z	670/680	Bobbin	1.95	1.75
40	13	½	Z	670/680	Tricot Beam	2.05	—
40	34	½	Z	200	Bobbin	2.00	1.80
50	7	½	Z	200	Bobbin	1.90	1.70
50	17	½	Z	200	Bobbin	1.80	1.70
50	17	½	Z	670/680	Bobbin	1.85	1.70
60	20	½	Z	200	Bobbin	1.70	1.60
70	17	½	Z	100/200	Bobbin	1.60	1.55
70	34	½	Z	100/200	Bobbin	1.60	1.55
70	34	½	Z	300	Bobbin	1.65	1.55
70	34	½	Z	680	Bobbin	1.65	1.55
80	26	½	Z	200	Bobbin	1.60	1.55
80	68	½	Z	200	Bobbin	1.65	1.55
100	34	½	Z	100/200	Bobbin	1.60	1.55
100	34	½	Z	300	Bobbin	1.65	1.55
100	34	½	Z	680	Bobbin	1.65	1.55
100	50	½	Z	200	Bobbin	1.60	1.55
140	68	½	Z	100/200	Bobbin	1.55	1.50
140	68	½	Z	300	Bobbin	1.60	1.50
200	20	¾	Z	100	Bobbin	1.45	1.40
200	34	¾	Z	100/200	Bobbin	1.45	1.40
200	34	¾	Z	680	Bobbin	1.50	1.40
200	68	¾	Z	100/200	Bobbin	1.45	1.35
210	34	¾	Z	300	Bobbin	1.45	1.40
210	34	¾	Z	300	Beams	1.50	1.45
260	17	1	Z	100	Bobbin	1.45	1.35
260	17	1	Z	300	Bobbin	1.45	1.35
400	68	¾	Z	100	Bobbin	1.35	1.25
420	68	¾	Z	300	Bobbin	1.35	1.25
780	51	½	Z	300	Bobbin	1.35	1.25
800	140	½	Z	100	Bobbin	1.35	1.25
840	136	1	Z	300	Bobbin	1.30	1.20
840	140	½	Z	300/700	Alum. Tube/Beam	1.30	1.20
Color-Sealed Yarn							
200	34	¾	Z	140	Bobbin	1.80	1.75
Industrial Yarn						**Price/Lb.**	
2520	420	0	O	300/700	Paper Tube	$1.27	
4200	700	0	O	300/700	Paper Tube	1.25	
5040	840	0	O	300/700	Paper Tube	1.25	
7560	1260	0	O	300/700	Paper Tube	1.24	
15120	2520	0	O	300/700	Paper Tube	1.23	

These prices are subject to change without notice.

Terms—Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Following are invoiced as a separate item:

Bobbins at 25 cents or 45 cents each depending on type.

Aluminum Tubes at 40 cents each.

Tire Cord Beams (Domestic Shipments) $220 each.

Cradles for Tire Cord Beams (Domestic Shipments) $115.00 each.

(Beams and Cradles are deposit carriers and remain the property of E. I. du Pont de Nemours & Co.)

Types

* Type is used to describe luster, tenacity, and size or oil content.

Type 100 Bright, normal tenacity.
Type 200 Semidull, normal tenacity.
Type 209 Semidull, normal tenacity, #S-139 spin finish.
Type 300 Bright, high tenacity.
Type 400 Semidull, high tenacity.
Type 670 Dull, normal tenacity.
Type 680 Dull, normal tenacity.
Type 700, Bright, high tenacity.
Type 140, Color-sealed, Black, normal tenacity.

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"*

Den.	Fil.	Twist	Luster	Type	Tubes 1st Gr.
30	20	0	Dull	57	$2.75
40	27	0	Semi-Dull	56	2.30
40	27	0	Dull	57	2.35
70	14	0	Bright	55	1.90
70	34	0	Semi-Dull	56	1.90
70	34	0	Bright	55	1.90
70	34	0	Dull	57	1.95
100	34	0	Semi-Dull	56	1.85
140	28	0	Bright	55	1.80
150	68	0	Semi-Dull	56	1.80
220	50	0	Bright	51	1.75
250	50	0	Bright	55	1.75
1100	250	0	Semi-Dull	59	1.50
1100	250	0	Bright	51	1.50

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Yarn Types

51 Bright High Tenacity
56 Semi-Dull Normal Tenacity
57 Dull Normal Tenacity
55 Bright Normal Tenacity
59 Semi-Dull High Tenacity

Tubes are invoiced as a separate item at $.70 or $.80 each and are returnable for credit.

* "DACRON" is DuPont's registered trade-mark for its polyester fiber.

NON CELLULOSIC STAPLE & TOW

ACRYLIC

The Chemstrand Corp.

Current Prices

"Acrilan"

2.0 denier Semi-dull staple and tow	$1.18
2.5 denier Hi-Bulk Bright and Semi-dull staple and tow	1.12
3.0 denier Bright & Semi-dull staple and tow	1.12
5.0 denier Bright & Semi-dull staple and tow	1.12
8.0 denier Bright and Semi-dull staple and tow	1.12
Hi-Bulk staple Semi-dull	1.12

Terms: Net 30 days. Freight prepaid to points east of the Mississippi River.

Carbide and Carbon Chemicals Co.

Div. Union Carbide and Carbon Corp.

Textile Fibers Dept.

Effective November 1, 1955

Dynel Staple

Natural Dynel	
3, 6, 12, and 24 Denier, Staple and Tow	$1.05 per lb.
Whitened Dynel, and Dynel Spun with Light Colors: Blonde, or Gray	
3 and 6 Denier, Staple and Tow	1.20 per lb.
Dynel Spun with Dark Colors: Black, Charcoal, and Brown	
3 and 6 Denier, Staple and Tow	1.30 per lb.

Prices are quoted f.o.b. South Charleston, W. Va.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Orlon"** Acrylic Staple & Tow

Denier	Price 1st Grade
2.0 Denier	$1.30
3.0 Denier	1.25
3.0 Denier Color-sealed Black—Staple only	1.60
4.5 Denier	1.20
6.0 Denier	1.20

Staple Lengths—1½", 2", 2½", 3", 4½".

High Shrinkage Staple same price as Regular Staple.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

** "ORLON" is DuPont's registered trade-mark for its acrylic fiber.

Eastman Chemical Products, Inc.
Tennessee Eastman Co.

Effective November 15, 1956

Verel

Deniers	Dull and Bright
2, 3, 5 and 8	$1.10 per pound

Prices are subject to change without notice.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in the United States east of the Mississippi River. Seller reserves the right to select route and method of shipment. If buyer requests and seller agrees to a route or method involving higher than lowest rate buyer shall pay the excess of transportation cost and tax.

NYLON

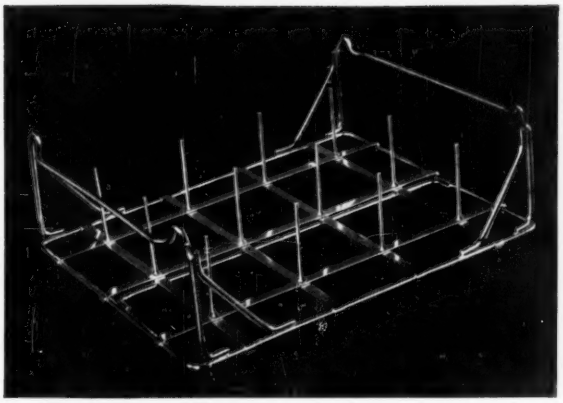
American Enka Corp.

Nylenka (Nylon Six Staple)

Denier	Luster	Length (Inches)	Price per pound
3	semi-dull	1⅛, 1½, 2, 2⅝, 3, 4½	$1.25
6	bright	3, 4½	1.25
8	bright	2⅝	1.20
10	bright	3	1.20
15	bright	3	1.20

Deniers and lengths of staple not listed above are available upon special request.

Terms: Net 30 days. Minimum common carrier transportation charges will be prepaid and absorbed to the first destination on or east of the Mississippi River. In prepaying transportation charges, seller reserves the right to select the carrier used.



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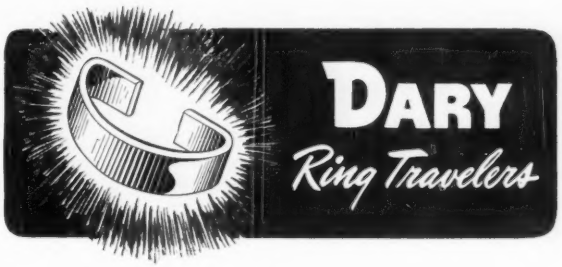

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CRAWFORD "JACK" RHYMER, BOX 2261, GREENVILLE, S.C.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

Nylon Staple and Tow

Denier	Length	Type*	Price/Lb.
1.5	1⅛"—1½"—2"—2½"	100/200	$1.30
1.5	1⅛"—1½"—2"—2½"	101/201	1.32
3.0	1⅛"—1½"—2"—2½"—3"—4½"	100/200	1.25
3.0	1⅛"—1½"—2"—2½"—3"—4½"	101/201	1.27
6.0	1⅛"—1½"—2"—2½"—3"—4½"	100/200	1.25
6.0	1⅛"—1½"—2"—2½"—3"—4½"	101/201	1.27
15.0	1½"—3"—4½"—6½"	100	1.20
15.0	1½"—3"—4½"—6½"	101	1.22

Tow price same as Staple for:
1.5 denier type 200 in 330,000 total denier
1.5 denier type 201 in 350,000 total denier
3.0 denier type 100/200 in 430,000 total denier
3.0 denier type 101/201 in 455,000 total denier
6.0 denier type 100 in 330,000 total denier
6.0 denier type 101 in 345,000 total denier
15.0 denier type 100 in 330,000 total denier
15.0 denier type 101 in 350,000 total denier

These prices are subject to change without notice.
Terms: Net 30 Days.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Types

* Type is used to describe luster, tenacity, not crimpset, or crimpset.
Type 100 Bright, normal tenacity, not crimpset.
Type 101 Bright, normal tenacity, crimpset.
Type 200 Semi-dull, normal tenacity, not crimpset.
Type 201 Semi-dull, normal tenacity, crimpset.

Industrial Rayon Corp.

Effective April 9, 1956

Nylon Staple

1.5 denier	$1.30 per lb.
2, 3 and 6 denier	1.25 per lb.
8 and 15 denier	1.20 per lb.

Bright and semi-dull, required length.
Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points east of the Mississippi River.

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Dacron"* Staple and Tow

Den.	Luster	Type	Staple Length	Tow Bundle	1st Gr
1.25	Semi-Dull	54	1¼"-3"	385M	$1.50
1.5	Semi-Dull	54	1¼"-4½"	385M	1.45
3.0	Semi-Dull	54	1¼"-4½"	385M	1.35
4.5	Semi-Dull	54	1¼"-4½"	385M	1.35
6.0	Semi-Dull	54	1¼"-4½"	385M	1.35

Terms: Net 30 Days
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.
* "DACRON" is DuPont's registered trade-mark for its polyester fiber.

POLYVINYL ACETATE

American Viscose Corp.

Effective October 1, 1956

"Vinyon"® Staple

3.0 denier	½" unopened	$.80 per lb.
3.0 "	1¼" unopened	.80 per lb.
3.0 "	1¼" opened	.90 per lb.
3.0 "	2" opened	.90 per lb.
3.0 "	2" unopened	.80 per lb.
5.5 "	1" opened	.90 per lb.
5.5 "	3½" opened	.90 per lb.
5.5 "	3½" unopened	.80 per lb.

Terms: Net 30 days.

PROTEIN

Charlotte Fibre Co.

Exclusive Agents for Snia Viscosa Italy "Merinova"
Effective January 1, 1954

Merinova Staple

3 Denier 1-9/16", 2-½" and 3"	$.81
5 Denier 1-1/16", 1-9/16", 2-½", 4" and 6"	.81
9 Denier 4"	.81
18 Denier 6", 2-½"	.81
60 Denier 14"	.85

Other lengths or deniers can be produced as requested.
Solution-dyed Merinova staple fiber.

Light colors	.90 per lb.
Medium colors	.95 per lb.
Dark colors	1.00 per lb.

French Combed Tops 1.10
Terms: Net 30 days. All prices are duty paid, landed free, freight prepaid to rail point nearest destination.

Virginia-Carolina Chemical Corp.

Fiber Division
Effective January 15, 1951

"Vicara" Staple

	Standard Crimp	Highly Crimped
3 Denier	$1.00 per lb.	$1.05 per lb.
5 Denier	1.00 per lb.	1.05 per lb.
7 Denier	1.00 per lb.	1.05 per lb.

Bleached "Vicara" Staple

	Standard Crimp	Highly Crimped
3 Denier	$1.10 per lb.	$1.15 per lb.
5 Denier	1.10 per lb.	1.15 per lb.
7 Denier	1.10 per lb.	1.15 per lb.

Staple length ½ to 6 in.
Supplied in staple lengths or as continuous tow (270,000 filaments).
Terms: Net 30 days.
Prices f.o.b. Taftville, Conn. on 10% moisture regain basis.

Wrinkle-Free Cotton Suit

A wrinkle-free, year-round cotton suit that holds its crease even after washing may be available soon at your haberdasher's, according to Dr. Leonard Smith, director of the National Cotton Council's utilization research division. Dr. Smith, at the annual meeting of the National Association of Institutional Laundry Managers, reported a test suit already is being worn by a researcher.

He explained that up until now resins for crease and wrinkle resistance always had been applied to the fabric prior to manufacture into garments, and that clothing made from such treated fabric can't be creased or pleated satisfactorily. Research, he said, has found a way which will soon make it practical to apply "minimum care" finishes directly to garments.

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3 Inches	22.50
4 Inches	28.00
5 Inches	35.00
6 Inches	42.00
7 Inches	49.00
8 Inches	52.00

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Chemist or chemical engineer with three or more years experience in viscose rayon or other man-made fiber manufacture. Excellent opportunity to grow with progressive company in a position covering a broad field.

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Graduate chemist with one or more years experience for non-routine and quality control analysis. Must be fully capable of developing methods. Viscose experience desirable.

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Hartford Rayon Company
Rocky Hill Connecticut

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Textile school graduate with mill experience in Narrow Fabrics, preferably in development work, to take charge of Sample and Quality Control Departments. Location Philadelphia, Pa.

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303 Fifth Ave., N. Y., N. Y.

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New York, New York

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Graduate Chemist or Chemical Engineer with at least 10 years experience in Rayon Production, preferably in staple, to be in charge of all Production Departments. Experience in labor relations and administrative ability required.

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Rocky Hill, Connecticut

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all deniers on cones, skeins or cakes,
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Calendar of Coming Events

Dec. 1—AATCC South Central Section. Hotel Patten, Chattanooga, Tenn.
Dec. 1—AATCC Northern N.E. Section annual meeting. Hotel Vendome, Boston, Mass.
Dec. 5—AATT monthly meeting. Vanderbilt Hotel, New York, N. Y.
Dec. 6—AATCC R.I. Section annual meeting. Johnson's Hummocks Grille, Providence, R. I.
Dec. 8—AATCC Southeastern Section. Biltmore Hotel, Atlanta, Ga.
Jan. 9—AATT monthly meeting. Vanderbilt Hotel, New York, N. Y.
Jan. 28-29—National Cotton Council annual meeting. St. Louis, Mo.
Jan. 28-31—Plant Maintenance & Engineering Show, Cleveland, O.
Feb. 25-27—Textile Quality Control Conference. Georgia Tech., Atlanta, Ga.
Feb. 27-28—Cotton Research Clinic, sponsored by NCC, Savannah, Ga.
Mar. 14-15—Textile Research Institute annual meeting. Hotel Commodore, New York, N. Y.
Apr. 29-May 3rd—Knitting Arts Exhibition. Auditorium, Atlantic City, N. J.

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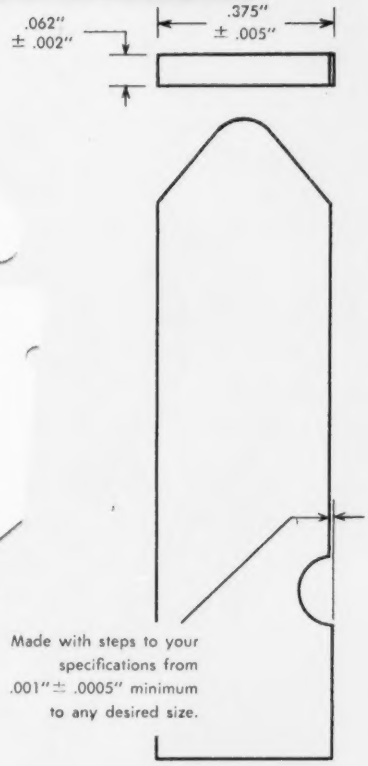

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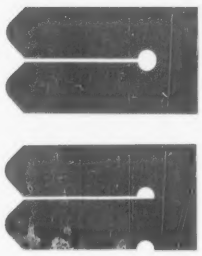
Typical AlSiMag Cleaner Blade Design. Great dimensional uniformity. Precision ground, all surfaces lapped flat and parallel.

Reduce yarn defects caused by broken filaments, waste, lint. Especially designed for synthetics. Fit standard holders. Longer Life—New, super-hard ALSIMAG 614 Alumina.



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Users report substantial increases in production of top-quality filament yarns. Custom samples supplied promptly at reasonable cost. Test these AlSiMag Ceramic Cleaner Blades in your plant and let your own quality and cost records show you the great advantages of these new blades. Send blueprint or sketch for complete details.

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55TH YEAR OF CERAMIC LEADERSHIP

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